The Builder.

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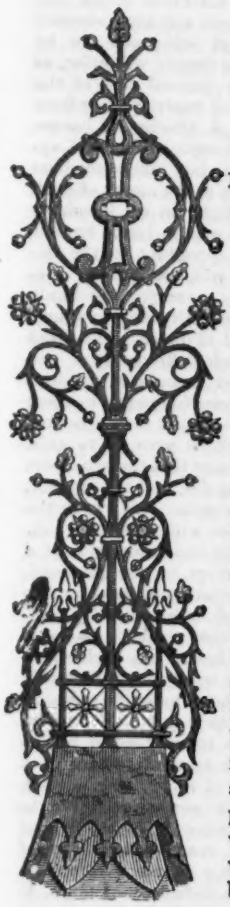


Coloured Architecture.

IN the exposition of the claim of colour to contribute to harmonies which are the essence of music in the largest sense, we had but little occasion to refer to that theory of harmoniousness that refers all success to the admixture of colours in the proportions that constitute white light. This theory has had, at least, its fair share of prominence; but the combinations that have been most influenced by it, if the truth must be told, have not been so conspicuously satisfactory that we should be blamed for approaching the subject from another side. Beauty produced by a formula will seldom be worth very much, but it will be worth least of all when proposed to be brought about by applying a rigid formula, and the works referred to bear too frequently the impress of such origin. From the seed so sown a more plentiful crop has sprung up of discords than of harmonies. Advancing to the analysis from another side, we were led to take note that every possible shade of every possible colour might take its place in a series along which the eye might travel from beginning to end,—encountering no sudden shock, turned back upon no harsh revulsion. Pleasingness of combination and pleasingness of transition are in colour as in sound the essentials of harmony and melody,—the negations of discordances. But discordances are continually inflicted on us by those who, having set their palette of architectural colours by the sanctioned rule, scatter its assortment of tints too much at random, and manage at last to fail as often by tame apposition as by harshness in absence of softening gradations.

Before, however, adverting to any of these failures, a few words may be given to the mischief which, so long as it lasts, must ever move a previous question in every discussion of colour, good or evil. Harmony of colour pre-supposes comparative purity of colour, and how can this be secured against the double invasion, from the road below and black-charged skies above, of all defiling dirtiness? While the causes that induce this subsist, we must,—at least in our cities and large towns,—limit our ambition for harmonies of colour: much of the only satisfaction we can hope for will be, that we do not make matters worse or invite the enemy that destroys us.

It is on this ground that brick has so much to answer for in the gloominess and griminess of aspect of many otherwise noble streets. Something may be done, no doubt, by excellence of material and workmanship, by closeness of texture, evenness of face, and fineness of joints. Something, again, might be done by an alteration of proportions of the brick; a flatter proportion would not only confer an appearance of general fineness to the construction and also solidity by subjecting each individual brick to the manifest *bite* of a greater number and a larger circumambient mass; but the very reduction of the difference in area between the face of the brick and the mortar-seams adjacent would enhance the sense of bond, and then a more general average would result of stains and discolourations on the bricks; and the colour of the seams, however fine they might be made, would become capable of contending in some degree with that of the plain surface they surround. After twenty years the memory lives in the mind of the sense of repose conveyed by large and plain buildings at the Hague, for which no other explanation could be given but the value of the long flat bricks. These suggestions leave aside, of course, the consideration of what sized brick will do for all constructive purposes,—will be most economical of labour in handling and brick-laying,—

> "Oh, reason not the need [says King Lear], our
> basest beggars
> Are in the poorest thing superfluous;
> Allow not nature more than nature needs,—
> Man's life is cheap as beast's;"

and his dwelling will be scarcely dearer; and we shall descend even lower again from that style of accommodation in which some of the noblest of the land might seem at present less to be housed than warehoused.

Do what we will, however, brick, as we have it, will still absorb damp and harbour dirt, and even lodge lichen-growth. We by no means wholly escape from these evils when we move from brickwork to stone; and here there is the further disadvantage that stone can scarcely be becomingly introduced into architecture without some acknowledgment of its dignity by carving; and to nooks and crevices that are provided in abundance by a capital or a frieze, fly at once all the unhandsome miseries and abominations of our atmosphere,—like the heaped unhappiness and unholiness that huddled about the altar of Pity in the Agora at Athens, or took sanctuary at Westminster in the bright Middle Ages.

We can scarcely hope, then, for anything but palliations until after the suppression of coal-smoke, which those of us who are younger need not despair to see—if they will persist in reiterating the *delenda est*.

If brick be taken at its very best and under best circumstances, it is capable—we may not only say with memory of Roman ruins in our minds—of dignity, but of harmonies of colour of considerable value. For illustrations of this we must, it is feared, rather look to the works of the past than of the present. We demand colours good in themselves, and then in effective combination. Walks may be taken of no little interest in search of examples through the older streets of London that were once fashionable, and are still sometimes genteel, though often no better than highly respectable. Good bricks well set together will be here found, and often of a colour that may be safely accepted as original—as unchanged and very agreeable. The colour of the brick is the complexion of the future dwelling, and should no more be left to chance even within several shades than the colour of the same house would be if it were introduced by a painter into a picture. Rawness, coldness, crudeness, seem to be the opprobrious words that rise most readily to the lips when we are moved to revile brick architecture that offends us. The disagreeableness they indicate is very happily corrected in the best of the examples we refer to, by a clear warmth, not without obligation to an admixture that gives faint suggestion of an orange glow. The uncleansed accretions of years do injury to the best examples, which it is easy to see, even now, only require the healthy application of a bath from a powerful fire-engine to discover themselves in all the grace of a tone as fresh as ever was recovered in an old master from under the brown varnish of Sir George Beaumont. The same process would reveal that no little, though by no means perfect taste, was exercised in the associated colour of bricks at the angles, edges, and borders of windows. In the distribution of these there is often much to desire; but in the selection of colour there is rarely a failure of harmoniousness. There can be no greater contrast to much of modern practice. The associated colours blend by the gradation of relationship,—we had almost said of consanguinity,—do not start asunder and fly into the fragments of repulsive contrasts and antagonisms. From one colour to the other we should not have to travel far if we compared the route between them upon the consecutive spiral of the diagram demonstrated in our previous article. The sin, as it seems to us, of too many later attempts at polychrome in architecture lies in harshness of contrast,—in breach of sequence. Contrast clumsily attempted ever founders on a discord. Black voussoirs alternating with cream-coloured, and not even kept in countenance by any analogous broken alternations elsewhere, are as painful to the musical eye as was ever unprepared and unresolved discord on the ear. The choice of the contrasting colour has to be sustained by appropriate place,—by happily proportionate mass. When these points are neglected or ill-managed, the eye is attacked—the word is not too strong—by the intrusive glare; is left without any intermediate help to escape; is carried away to other parts only by violence of will instead of spontaneous solicitation; and is teazed by the apprehension of again encountering its enemy; worried by vagrant lines of red and spots of blackened angularities that defy all rational rule, as vexatiously as if it were pursued by a tormenting and dazzling reflection. To such baited misery, tameness is a relief, and insipidity for a moment passes with approval for sobriety; but why should we be exposed to either one or the other? Wearied by a reader or a declaimer, who is lavish of emphasis, but ever gives the distinction to the wrong word, the wrong clause, we may accept with gratitude for a time—through this it is not impossible to sleep—unaccentuated monotony or drawl; but when we escape from both in no moderate discontent, we are, if wise, no nearer to renouncing faith in the possibility of either true eloquence or coloured architecture as verities in art.

When stone is associated in the same work with brick, we may observe how all-important it is that its permanent colour, or that which it is sure to assume, should be duly allowed for in the colour of the brick selected. How the transition from one to the other is best managed—especially how the immediately adjacent mortar-beds can be masked by moulding or projection, and must be, at peril of much offence, is matter that belongs elsewhere: enough if it be noted here that unless some relationship of tone and hue is within reach, it were better that any presumed enhancement of dignity to the inferior material should be sacrificed, and the nobler left in its quarry or cast into the sea.

The permanence with which red granite preserves a high polish in a London atmosphere has recommended its employment in very costly and important external enrichments chiefly in the form of columns free or attached. The beauty of the material renders it a matter worthy of most careful study to secure for it a place and surroundings in every way appropriate: this can scarcely be unless in a building of any importance it be applied in such abundance as to

preclude the appearance of being but a *purpureus pannus*, and the effect of simply branding the general material with poverty by its implied costliness and rarity; the next condition is that when rightly applied in place and in quantity it shall be duly supported by the associated colours.

It is difficult even for an ardent admirer of Early English architecture to acquit it of having set but an unlucky example in its use of Purbeck shafts. The colour of these is ever in harsh contrast with the masonry contiguous and connected with them, and whether in the pillarets of Canterbury or Ely, or in the pillars of the Temple in London, we shall fail to do free opinion justice if we accept the combination as harmonious. In some former papers on architectural development we showed how the application of Purbeck affiliated on the precedent of Pisa; but England failed in a wealth of varied marbles to complete the ideal. An age in which imitation and revivalism cannot but have important sway amidst reviving enthusiasm of ancient monuments, has ever to be on its guard against reviving the erroneous and taking the immature and the mistaken for models. We would say boldly that the Gothic architects never did full justice to any one of their styles; before they had perfected one by elaborating its best capabilities and revising its defects, they were carried off by suggestions of novel forms, and pushed on an improvement at once so rapidly, that it came out forthwith as blank substitution. If this be so, the task of the modern Gothic architect who selects a period for special attention should be quite as much to correct and complete as to imitate his master. How far he is capable of such a function he will have an opportunity to show, in his treatment of Purbeck shafts, as well as many another detail. Gothic apart,—there is much the same objection to the position of polished granite shafts where by splendour and permanence they shame the poverty of the stone above them and around, that is always taking stains and variegations from the atmosphere even when not suffering in surface as being "soluble in soot and water."

We see dust and weather-stains so far co-operating in some instances, that while the sheen of the granite is reduced, and its colour deadened, the stone of the building acquires a yellowish tone, that helps to some appearance of a union. But this is not architecture, any more than a sweep's dirty face is full dress.

It is but seldom we see these enrichments without being tempted to cry, would there had been more or less. Costliness fails fatigued even before it has accomplished the column; and to escape a harsh discord, not merely in quality of material but in colour, we demand both for ease of transition and as matter of keeping that it should have such a bronze base as was familiar in Sicily to Pindar, and a bronze if not gilt capital. If any part whatever of the column is to be exceptionally rich, it would seem that it should be the naturally rich and conspicuous capital and moulded base. To leave these poor conveys the intimation that extravagance has made a vulgar blunder, and, exhausting its purse upon an equipage, has nothing left for horses.

OUR DAILY BREAD.

THE subject of the supply of food to the population of the United Kingdom is one which the annual increase of that population renders every year more important. Nor can we measure that increase by the moderate augmentation of some one per cent. per annum, indicated by the total of each successive decennial census. The ever-increasing complications of modern civilisation, the strain put upon the productive power of Europe by the diversion from agriculture to military occupation of 4,000,000 of the flower of her youth, the competition of all manufacturing art with the patient toil of the farmer, and, perhaps more than all, the insatiable rapacity of speculation, tell with formidable weight on the exertions of the bread-winner.

The mother-idea, as our Continental neighbours would term it, of the British school of political economy, was that of the difference in the ratio of increase between consumption and production. In this, as in all theories which start from a single assumption, practice differs widely from hypothesis. That under certain given circumstances the difficulty feared by Malthus might arise, may be freely granted. That in a country which is a very hive of industry, and of which the ports are freely open for the reception of the harvests of the world, an increase of the inhabitants should be, were all things wisely ordered, anything but an increase of wealth, may be unhesitatingly denied. Of all the products of civilized life the mature, healthy, educated man or woman is the most precious. It is that without which no other product has any value at all.

To secure this ultimate product of civilisation the first and most important requisite is an abundant supply of cheap and wholesome food. Increase in the price of food, or, what is the same thing, diminution in its quantity, or deterioration in its quality, is instantly felt, and the immediate tendency of such a change is the deterioration of the race. Brought to a certain pitch, such a change is the sure cause of political convulsion.

That continental government which assumes to be the ultimate expression of the popular will invariably keeps a watchful eye on the supply of food for the people, and is accustomed directly to interfere when the price of bread threatens any notable rise. In our own country any such interference on the part of the Government is inconsistent with our habits, and foreign to our political forms. But it by no means follows that the supply and the demand will equalise themselves with the happy propriety promised us by political economists. It is true that the opposing interests are altogether disproportionate in their magnitude. The want of cheap and good food is universal. The benefit to be derived by individuals from the rise of price or from the adulteration of quality is disproportionately small in comparison to the injury inflicted on the consuming public. But, on the other hand, that small benefit is divided among so small a number of persons that the amount which may be received by each of them is very large. There is, therefore, a very powerful inducement to the formation of such an organised system on the part of the supplyers,—not the producers,—of food, as the consumers can only meet by some sort of counter organisation. In other words, the tradesman's profit has become disproportionately high. The difference between the wholesale and the retail price, between the sum which the farmer receives for his beasts and his wheat, and that which the butcher and the baker demand for a joint and for a loaf, is too great to do no more than cover the proper risks and profits of trade. Butcher will not undersell butcher, or baker, baker, because it is more to their interest to arrive at a common understanding, and to keep up the price of their commodities against their common prey,—the public.

The above statement is not matter of mere opinion. Not a season passes without the attention of the public being more or less forcibly called to the subject, by such means as the comparison between the Leadenhall price of meat and that charged by the West-end, or even by the country butcher; and the remark of the steady maintenance of the items of the baker's bill, in face of a fall in the corn market. But exposures in the newspapers effect little, unless it be by turning more and more the attention of those to whom domestic economy is important to the practical application of that remedy which lies nearest to the hand.

In every speculation, and in every kind of business, profit is in some sort dependent on risk. Risk and profit might be spoken of, in mathematical language, as "functions" of one another, were it not that the latter is generally so contrived as to increase much more rapidly than the former. The increased profit, in business as well as in the lottery system, generally far exceeds the increase of risk which forms its pretext. In this fact lies the secret of the large fortunes which are now so rapidly accumulated in trade. The risk of the tradesman, who is sufficiently at home in his trade to understand the art of purchasing his wares, may be reduced to two items,—want of custom and bad debts. If we except the risk of pilferage from his own servants, and suppose the salesman to be fit for his trade, he can only lose either from having his wares left on his hands from want of custom, or from having them taken off his hands by customers who subsequently fail to pay him for the goods. If these two sources of risk can be eliminated, the profit of a tradesman may be calculated with the utmost exactitude. It will depend, to a certain extent, on the amount of his business, because a certain fixed expenditure in rent, wages, &c., will have to be divided over a larger or less difference between income and expenditure; but we are supposing the magnitude of the business to be to some extent determined beforehand, when we speak of avoiding the risk of want of custom. Let a man be assured that he shall have a steady demand for so many pounds, hundred-weights, or tons of food or other merchandise per week, and let him be assured that he shall be paid for such demand down on the nail, and he can afford to be satisfied with a very moderate per-centage upon the wholesale price.

This practical piece of political economy has been acted upon, with the best results, by some of the co-operative associations of the day. There are signs that the attention of the consuming public is being more and more steadily turned in the direction of self-protection by association. Of course the danger will arise, as we have not unfrequently pointed out, of the waste of money from want of experience, or from want of faithful service. A number of householders uniting in a meat association, and appointing their own agent to buy and to manage for them all, are very much at the mercy of such a manager; and if they light on an incompetent or a dishonest agent will be likely by and by to sneak back again repentant to the triumphant butchers, who will, no doubt, celebrate the return of the converted prodigals by the addition of an extra halfpenny or penny to the price of the pound of meat. The great source of loss in all undertakings that are carried on by subscribed associated capital, namely, the want of a sufficient personal interest on the part of the manager, must never be forgotten by those who seek to save or to gain money. They must take care that the principles of human nature are acting for, and not against, their enterprise, or human nature will win in the long-run, and the enterprise will come to an end.

It is, therefore, rather by the association of a respectable body of customers, on the one hand, with respectable and selected tradesmen on the other, than by means of more directly self-originated undertakings, that we hope to see a reform in the supply of food. But such enterprises must have, in order to be sound, a certain degree of restriction. There must be a reality in the membership, if there is to be any position and permanent advantage to be derived by the members. A co-operative association must not sink into a mere means of advertising certain tradesmen. Above all, it seems important to insist on exclusive ready-money transactions, and that for a twofold reason: one is the avoidance of risk, for even with a weekly payment there is a certain amount of risk—a definite maximum, it may be, but still an appreciable item in the balance sheet; the other is, that the man who pays cash trades on his own capital. The returns are rapid. Pay day by day, and your shilling is turned daily by the tradesman, and earns its daily profit. Pay once a week, and the shilling is turned only once, instead of six times. The risk may be little; the time is very short; the bank will readily find the money to conduct the short credit business; all this is true. But it is no less true that 100*l.* daily turned over will earn just six times as much in a year as 100*l.* weekly turned over. If we are seeking for economy do not let us neglect so obvious an element.

With the function of the retail tradesman the supply of the family at the smallest remunerative advance on the *bonâ fide* wholesale price of the chief articles of consumption the question by no means ends. The full light of publicity has to be turned on the sources of primary production. Some producers, many, it may be, object to this. Farmers refuse to give information as to the acreage devoted to various crops, and resent what they consider an unwarrantable interference with their own business. Let them rely on it that they are wrong in so regarding it. They thus injure the consumer, and by no means benefit themselves. Ignorance is hostile to the true interest of either producer or consumer. Such a proposition, nakedly put, is self-evident. There is, indeed, a class of people who live upon that ignorance; it is the class which, known to our ancestors by odious names of forestaller, regrater, and the like, now dignifies itself by the name of speculator. We do not speak of that free and open speculation which is the life of all commerce—the fair risk which the merchant knowingly runs, and for which he deserves to be fairly remunerated. But it is the speculation which has prolonged the panic of 1866 to the winter of 1867; it is the unrighteous and accursed speculation which broke bank after bank that men might make money by the depreciation of shares, and grow fat upon the ruin of families, that we deprecate. The man who sells

that which he has not—cotton, iron, wheat, shares—in the intent, which he forthwith sets himself to work to carry out, *per fas et nefas*, so to force down the prices as to buy a week hence at a lower value than that for which he sells, or the man who buys that which he cannot pay for, in the hope that he can puff his purchase into imaginary value before he is called upon to pay,—these are the men, and these alone, whose interest it is to close the eyes of the public as to the actual operations of yearly husbandry.

With statistical knowledge of the actual state of our agriculture, should be associated full information as to the most reliable improvements in husbandry. Very much has been effected within the last ten or fifteen years. A ride or a drive through an agricultural district now, is very unlike what it used to be. If the progress of the railway system has, unfortunately, been brought to a stand, such is not the case with that of the steam plough. Drainage is annually adding to the productive acreage of England a far more certain gain than that effected by such operations as the annexation of Nice and Savoy to the French empire, at the cost of fifteen years of imperial rule. New manures, and, better still, the intelligent use of the refuse of our great cities, are only commencing their beneficial service, and the chemical investigation of soil, and scientific application of the deficient elements, in each particular case, are raising farming to the rank of practical science.

Connected with this application of science to agriculture, are the labours of the naturalist. Acclimatization, which hitherto has for the most part been studied for the sake of ornament and luxury, is more and more attracting attention for economical purposes. In our colonies and foreign dependencies, this is, perhaps, more the case than in Great Britain. The extension of tea and coffee culture in India has had a sensible effect upon the home market. The encouragement of the growth of cotton has received a powerful stimulus from the past campaigns of the American civil war. Perhaps the most noticeable of all similar efforts has been the safe conveyance, under circumstances of peculiar danger and difficulty, to suitable climates in India, of the seed and seedlings of the cinchona, and the successful inauguration of a new and domestic source of the invaluable drug quinine. In England itself we have welcomed the visit of that marvellous stranger, the *Raphanus Caudata*, the new radish, with pods that grow with visible celerity, the very bean-stalk of the fable! We are just now witnessing an amusing newspaper discussion as to the merits of a new cereal, the Chinese sugar-grass, which disappointed purchasers declare comes up only by aid of the hot-bed, and is worth nothing when it has so come up. We are receiving lessons from the growers of Normandy pippins and *Bon Chrétien* pears as to the more productive management of our orchards. In kitchen horticulture, as well as in floral horticulture, our gardeners seem arriving at great power of modifying, and, in many instances, improving the ordinary operations of nature. That this skilful attention may be directed with the best results to the wider field of agriculture, we have at least two very notable and luminous proofs. One is to be found in the magnificent growth of giant turnips that has been attained by the carefully repeated process of selection of seed from none but the finest plants; the other is the similar result of a similar care in the case of wheat. The instances which we have quoted are enough to encourage the hope that we are but on the threshold of a very marked and beneficial improvement in the results of agricultural study,—improvement which will combine the naturalisation and successful growth of plants hitherto strangers to our soil, with the transformation of those long cultivated among us into highly improved varieties.

We have left no space to speak of that which was chiefly in our thoughts on taking up the pen,—namely, the improvement in water-farming. Everywhere, indeed, by land as well as by water, the increase of scientific knowledge is leading men to respect more, and to destroy less, the works of God. The grouse disease of the present season has called attention to the ill results of a wholesale destruction of the birds of prey. But our rivers have suffered far more than our forests and hedge-rows, and that from the double cause of the wanton and greedy destruction of the fish, and the pollution of the streams by sewage. In both of these respects we have brought legislation to bear with visible success. The care of man, directed to the artificial hatching of fish, is restoring the salmon to those rivers from which unpardonable neglect has allowed this king of fishes to be driven. Even the Thames gives promise of a return of these noble migratory fish, and there is reason to hope that within a few years they may become common in many of our inland waters. It is, indeed, time that we should try to restore the fish to their element, or the element to the fish, for it is announced that we are at the end of our oysters. So vigorous has been the onslaught of the dredges, that the beds are exhausted, the price of the natives is becoming fabulous, and, without the scientific aid of the oyster farmer, the eaters of that nutritious mollusc will be driven to depend on the supplies furnished by the French and the Italian bays and lakes. Look where we will, the need of man has so far impaired the wealth of the uncultivated stores of nature, that he is called upon to labour in order to replace the waste. He has so far subdued the earth, that he has no time to lose in tilling her surface and in replenishing her stores.

MR. HENRY COLE'S ADDRESS TO PARIS ARCHITECTS.

The opening meeting of the École Centrale d'Architecture in Paris was held on the 12th inst., when Mr. Henry Cole, C.B., delivered a discourse in French. We English it thus:—"Readers of the Bible, at your Universal Exhibition, thanks to the Emperor, you know well that no one is a prophet in his own country. If the South Kensington Museum were endowed with life, it would on this occasion express to you at once surprise and gratitude for the gracious consecration that you give to it in my person. In its own country, the museum has had to fight for its life. Parliament pays, but discusses seriously its existence, besides salutary opposition. An ignorant public, it is true, delights itself in filling our galleries; but in England our high priests of architecture have crucified the author of the designs for the museum buildings,—Captain Fowke, to whom, nevertheless, the International Jury of your Exhibition has awarded a gold medal of the first-class. Finding myself in the midst of friends of the museum, as I flatter myself you are, allow me, notwithstanding the quality of my French, as well that I am not an architect, to say a few words to you on architecture. I ask myself why you have done me the honour of requesting me to preside over you, and I imagine I have found the reason in a certain analogy that exists between your Central School of Architecture and our museum at Kensington: we put in practice, I believe, the theoretic principles that you teach here. If I do not deceive myself, you regard construction as constituting the skeleton of monuments; so do we; you hold as a fundamental principle that a monument should be appropriate to its purpose, the same as we do. You believe that the nature of the materials used should regulate the form: we also. It is then, and then only, that you concern yourselves with decoration: we the same. You subordinate decoration to construction: so do we at Kensington. Is it, then, a heresy to proceed thus? The arrangements of a public museum, which thousands of blouses and short jackets frequent, differ from those of a religious temple, whether it be Egyptian, Greek, or Roman: they differ from those of a cathedral or of a church, reformed or not reformed; nor are they any more like those of a fortress, of a battlemented tower, of an imperial palace, or of a feudal château. Museums are, so to say, a sort of modern socialist monument, where the level is the same for all. There is no dais, and there are no reserved places, and the architecture of the past furnishes us with but rare suggestions for their foundation. London not enjoying the brilliant clearness of the Paris climate, we have sought to obtain the greatest amount of light possible: that being obtained, we regulate it by means of blinds. It is easy to intercept the light, but not to make it. It is necessary for us to provide heat on a great scale, and we have miles of pipes moderately warmed. We have since our opening lighted the museum by illuminating each night 14,000 gas-burners, and we hope soon to have 40,000. Our ventilation is provided by that primitive process that consists in introducing an abundance of fresh air or of warmed air, according to the exigencies of the season, and allowing the vitiated air to escape by the ceilings. Not having that magnificent freestone of Paris, which cuts like,—cheese, we use red brick and terra-cotta; and terra-cotta, you know, resists atmospheric influences better than granite itself. You have noticed, perhaps, in the Exhibition a semi-circular arch and a work in brick, which the despotism of a logical classification has placed in the gallery for machines. We have had the honour of offering these specimens to the *Conservatoire des Arts et Métiers*, where they will be placed in the garden. We imitate at Kensington the example you give us in Paris in daring to apply iron for the support of carpentry and ceilings. We even allow to be seen some of the iron ribs, which we decorate with gildings. Upon the walls we place majolica and mosaics of enamelled *faïence*,—an invention to which I venture to call your attention, because it offers the means of giving an eternal duration to mural paintings. Gentlemen, if you are willing to brave the terrors of La Manche, to have faith in the recipes against sea sickness, and to come and see the Kensington Museum, we shall be happy to act as your guides, and you will find, I dare hope, that we are faithful to the true principles of architecture,—principles that are so resolutely, so brilliantly, taught to you in the Central School of Architecture. Perhaps you will find there some ideas,—some useful suggestions that you will accept in exchange for the magnificent examples of your studies that we have been permitted to obtain from your school. It seems to me that architecture, like many other things, is just now in a state of transition. The architecture of our days is not studied in the cloister for the purpose of building cathedrals, fortresses for the nobles, or numerous palaces for kings. It ought all over the world to supply the wants of a civilized democracy, and cannot progress but by resting on common sense directed by science and inspired by art; and it is thus architecture should devote itself in all humility. May M. Haussmann long continue to respect these tranquil gardens of the Central School, which recall to me the peaceful shelter of a cloister, and permit you to pursue your studies, so pacific, so useful, of a character so elevated, and which contribute so much to the happiness of humanity. Gentlemen students, I am happy to be able to say that your director has been so kind as to allow me to offer, for the end of the present scholastic year, a prize to be given to the most successful student in drawing the figure: this prize will be awarded by the students themselves.

Mr. Cole is a valuable public servant, and has often entitled himself to our warm thanks, which were never sparingly given. We are very sorry that we do not find ourselves induced to add to those thanks by this address. The work for which the International Jury awarded a medal to the late Captain Fowke has no connexion whatever with the building designed by him which provoked hostile criticisms, nowhere more severe than in France; nor did "the high priests of architecture" crucify Captain Fowke for those portions of the *permanent* museum which could now be shown. In setting forth the ordinary principles of architectural design as those in which the École Centrale d'Architecture and the South Kensington authorities agree, his Paris audience must have been led to suppose, erroneously, that these were not the principles taught in England, and carried out more or less by English architects according to their ability and taste. Again: surely it was neither necessary nor correct to say that the iron construction in the new Courts at South Kensington was the result of following what had been done in Paris. That Mr. Cole, of the Great Exhibition of 1851, should say this, is surely remarkable. The French architects who studied years ago the court of the Oxford Museum, and imitated everywhere the construction of our railway stations, must have listened to this remark with surprise, though much too jealous of national credit to question for a moment its correctness.

American Manufacture of Steel Tires.—The manufacture of steel tires for locomotives, formerly a branch of trade done only in England, is now accomplished successfully at several places in the United States, one of the latest factories opened being located at Nashua, New Hampshire. Philadelphia was the first place in America where steel locomotive tires were made.

SANITARY AND SOCIAL ACCOMMODATIONS IN THE STREETS OF PARIS.

The sparkling streets of Paris have several features in sanitary and social accommodation that deserve a word of notice. Ever gay, with the use of light colours and gilding, and full of motion, with the fluttering of awnings drawn here and there over the footways in front of houses, and shops, and *cafés*, with jalousies and sombreros to the windows on the sunny side of the streets, and green, rustling, and leafy with the blending of trees with roadways, the authorities have made them still more attractive by erecting and allowing others to erect various constructions of an ornamental character for useful purposes in great numbers. The Boulevards, the Palais Royal, the Champs Elysées, the most frequented of the *places*, have all isolated erections of the kinds we are about to describe. But before specifying these we would allude to a still more important experiment, the concrete roads that are now in use. In some streets the noise and rattle we are accustomed to associate with much traffic is suddenly lost, and although the bustle continues and there is just as much swift coming and going to and fro, a comparative quiet reigns around. This is owing to the construction of the roadway. Instead of the surface presenting the rough, uneven form of granite blocks or macadam, it is entirely concreted and smooth. The wheels of the omnibuses are muffled, and all that is heard is the ring of the metal shoes on the horses' hoofs.

The disadvantages of this system appear to be the rapid casting off of a fine powdery dust; which inconvenience is only to be obviated by the use of the water-cart or watering hose. The limey nature of the concrete combined with the sun-heat absorbs the water rapidly, and watering is continuous in fine weather. Accordingly, a feature in Parisian streets is the frequent presence of the watermen. One of M. Haussman's grand points is evidently to effect a saving of labour; and this intention is carried out right and left, even to the watering of streets. The apparatus used for the purpose is ingenious. Several lengths of metal pipes, each about 10 ft. long, are attached together by hose junctions, the junction of each length resting on very low small wood trucks furnished with tiny wheels. One end is attached to the *borne-fontaine*, or water-plug, and at the opposite end is the nozzle, which the waterman carries in his hand, squirting the water right and left from the main, with great dexterity, among passengers and vehicles, easily moving the metal pipes on their wheels along the smooth surface in any direction he requires, and standing at considerable distances from the water-plug. This system can, however, only be applied in very wide and uncrowded streets. The new roadways are constructed on a principle that has some advantages on the score of cleanliness and sightliness as well as noiselessness. Instead of the gutters being made as open channels running parallel with the curb-stone, they are partly recessed underneath it. Besides the deep curve beneath the overhanging curb-stone there is a slightly-raised portion in granite blocks, which confines the waters in the channels, discharges them into the concealed gullies, and prevents them from overflowing on to the cement roadway. As the daily dust, waste, and *débris* accumulated by Parisian householders are turned out on to the gutters and collected by the scavenging carts every morning, the gutters necessarily hold for several hours before noon the filth. Water is turned on three hours a day to purify the streets, and men are employed to sweep them as the water runs; the gutter keeping the filth out of sight under the curb is therefore a desirable sanitary provision.

At intervals, among the trees that border the footways of the Boulevards and other places of public resort, are somewhat fantastically constructed pavilion erections, varying from the size of a pillar-post to a small Swiss cottage. Some are for the sale of light drinks, others for the exhibition and sale of newspapers and small literary wares, and others, again, are "stopping-places." The proprietors of *cafés* have, indeed, time out of mind, carried awnings over the pavements, and placed their inviting chairs and little tables under the green and shady flicker of the trees; but these smart little buildings are on the increase, and have a sort of affinity to the world's fair that has been such an attraction in Paris this year. We will describe one of them. It is for the sale of newspapers. The materials employed are wood, glass, and bronze. It is of an octagonal form, and its height is divided into three tiers of panelled compartments, of which the lowest is entirely of wood, and the two upper ones are glazed. One panel, or one side of the octagon, is left open for communication with the person in charge within. A bronze cresting finishes the octagon, which is covered over with a small domed roof. The entire diameter is about 4 ft. and the height 12 ft. The *urinoirs* are more like very tall pillar-posts, with a small recessed sink provided with a drain at a convenient distance from the ground. There are, however, numerous designs in these accommodations, which are for the most part situated in astoundingly exposed and public places. The municipal government boldly deals with the subject of the necessary conveniences. An Englishman is not prepared to find so much provision of the kind; nor the sites of it so conspicuous, nor the forms so studied, and ornamental, as may now be noticed.

At the main entrance to the Hôtel de Ville the first bay to the left has been furnished with simple slate divisions between the buttresses at the plinth level, without any further shelter for, or disguise from, the passers by.

Within sight of the Tuileries windows on that broad gravel-walk, where the prim orange trees with their twisted, gnarled, and knotted roots, stand in boxes, and the ornamented sentry-boxes are painted in dark green stripes upon a white ground, and the familiar statues stand out luminously white against a dark green foliaged background, and all around is stately, palatial, and somewhat formal, we come upon two more conveniences of this description in a most public position. The broad flight of stone steps by which ascent is made from terrace to terrace has a retaining wall on either side, and in these retaining walls, close to the steps, are two arched recesses, made originally to relieve the blankness of the masonry, which are now each furnished with four urinal sinks, divided from one another by a slight projection, but in no respect partitioned off from the frequenters of these Elysian fields. And nearer than this to the Tuileries, at a gateway immediately under the windows, a *café* has been permitted to establish itself, and place a convenience for the use of its patrons on the side nearest to the palace windows. Provision for ladies is also made. Among the shops in the main streets are, here and there, shop-fronts in which no goods are exposed for sale. They have announcements in the windows to the effect that there are *cabinets inodores* within. On entering the open door, further notifications point out which cabinets are intended *pour les dames*, and which are set apart *pour les hommes*. We know not which is most startling, the amount of provision or its exposure.

In the Place de la Madeleine there is a fountain, in which flowers and water are alternated with a charming effect. The margin of the large stone basin into which the fountain daintily splashes and sprinkles its waters is bordered with flowers. Half-way up its height are more flowers and moss, and its summit is formed by a gaslamp, with which the whole is lighted up at night. We must add, admiration of flowers as ornaments sometimes lead to curious associations. We saw, a few days' since, a geranium growing in a pot deftly inserted in the inside of a fatted calf, that a butcher had recently killed, and suspended by a hook in his shop-window, and bouquets and flower-pots indiscriminately garnishing the meat.

The *cafés* are more resplendent than ever. They made Paris a city of colonnades of awnings and loggie. We note an arrangement in which the front of the *café* is raised from the façade of the house, so as to leave room for a row of velvet-covered seats and ornamental slate tables beneath the protection afforded from the overhanging house. Beyond the slate-covered table is a cane-bottomed *dos-à-dos*. Persons sitting on one side of this face the velvet chairs we have mentioned, and those on the other face a second row of tables, which are in their turn bounded by another row of seats, over all of which flutters a smart striped awning. In the Palais Royal, between the piers of four of the arches of the arcade, which are made to serve as a base, a glass and iron *cofé*, called the Rotonde, on account of its form, has been permitted to encroach into the gardens. Still more covered space is cleverly contrived by the extension of the flat, ornamental, zinc roof, which is fringed on its outer edge by a cresting above, and cusped valence below, considerably beyond the Crystal Palace-like *salle*. It is supported at intervals by light iron columns, and forms a sheltered colonnade, which at this season is crowded with visitors. It is furnished with chairs and small tables. Protection from the sun is obtained for the occupants of the colonnade by curtains, which are looped to the columns, or drawn at pleasure. The whole is painted in stripes of colour. A second encroachment upon the gardens from the arches of the colonnade, forms another *café*. This is not glazed. It consists only, we might almost say, of a rectangular roof, supported on light iron columns, to which curtains are also attached. The Parisians, like ourselves, jealous of their open spaces, would, doubtless, not eye these encroachments with toleration, if it were not that coffee sipping in the open air is part of Parisian life, which any one may enjoy who can pay for it. Notwithstanding this feeling, the French press is beginning to inquire how much further are such encroachments to be permitted.

In all the public places, on the boulevards, on the quays, in the gardens of the Palais Royal, Tuileries, and Champs Elysées, there is an ample supply of double-seated benches with rails, so that people sit upon them *dos à dos*. These are free to the public. In addition to these there are tens of thousands of chairs provided by speculators, for the use of which a demand of two *sous* is made. The latest novelty in the form of a chair is that provided in great numbers in the outer circle of the Great Exhibition, concerning the monopoly of which there has been so much dispute. It has a spring circular seat, which is made of strips of thin metal, radiating from a flat central boss, each strip being narrower where it runs into the centre than it is at the outer edge of the seat, and rises up in a round cushion form. The novelty consists in the lightness yet strength of the chair, which is all painted metal, as well as in the elasticity of the seats. In noting these apparently inconsiderable sanitary and social accommodations, the improved roads, gutters, waterings of streets, newspaper-pavilions, seats, &c., we find the Government, while grasping with the greater features of public buildings and new streets, has not omitted attention to the minor matters that increase the convenience of the out-of-door public. In this respect our town authorities might well take some hints.

THE QUALITY OF IRON AS NOW USED.

At a recent meeting of the Society of Engineers, Mr. Ewing Matheson read a paper under this heading, wherein he showed the difference there is in the character of iron, and how very dear a low-priced article sometimes is. We quote a portion of the paper as of great interest to our readers:—

This paper in being addressed to engineers at any rate, appeals to those who can discuss the facts put forward, and, if they think proper, act upon them; but unfortunately a large proportion of constructive ironwork is not designed by engineers at all, but by architects, who, of necessity, have to usurp functions in the proper exercise of which they have not had sufficient experience.* The materials of wood and stone and brick they use in all the forms and dispositions which the accumulated traditions of centuries have proved to be the best, and they have on every side examples of what to copy or avoid; but iron is a new element to many of them, in its present numerous varieties of application. The demand for fire-proof building, for open spaces involving large distances between bearings,—in fact, for iron in most of its modern forms,—finds many of them quite unprepared for its proper treatment. There are, of course, many exceptions; there are those who have wisely given the subject special attention, as one which is paramount, and there are those who, in these special matters, show their discretion by asking the advice of an engineer. But while some architects have a large and happy belief in the capabilities of iron, they cannot get out of their mind's eye, or rather their architectural eye, the forms and proportions of bygone days. There is sometimes to be seen in London the most extraordinary strength given to ironwork in warehouses, where stancheons have been placed that would have carried St. Paul's almost; and this feeling, again, is another result of the utter uncertainty that prevails about

* This refers to what is rather than to what ought to be.—Ed.

the strength of iron. The matter ends with the architect, when, in a neat bill of quantities endorsed "Smith and Founder," his ironwork goes forth to the builders, and from them no one knows where, certainly, in most cases, all over Great Britain, directly or indirectly; and a contracting builder of the present day will obviously accept the lowest tender, unless something notoriously wrong appears in it. And naturally, therefore, the architect makes himself safe, and allows for a strength of casting which probably the vilest iron in England will give him. Architects often apply tests, but generally only to something higher than their working load, and no valuable knowledge is obtained. In the more conspicuous and ornamental ironwork an architect will examine critically the outside finish and appearance of his castings, quite unaware, in most instances, whether in strength or toughness the iron is twenty per cent. above or below a fair standard. What it is likely to be may be shrewdly guessed from the system under which it may be procured, it having very likely been purchased from the cheapest ironfounder, who cannot use good iron without loss.

In London, where space is valuable, where the skill of the architect is taxed to make the most of the ground, surely it would pay best to use the strongest material, and save in breadth and head room. Iron is simply iron in the eyes of a builder who does not care to make curious scientific inquiries into the material supplied to him: if it has a good appearance he is satisfied he has done the best for himself; but it is doubtful if the architect has done the best for his client. In the so-called fire-proof structures of the present day, the structures themselves may be so, but when filled with combustible goods, they are destroyed in spite of precautions. A warehouse composed of iron framing, of concrete floors, and stone staircases, is looked upon as invulnerable; but when, filled with hemp, and tea, and oil, it catches fire, what of the framework then? Then, indeed, the iron stancheons and girders are tested. With the intense heat, all their power changes; they bend, they break, they fall; floor crashes through to floor, and the fire-proof building is in ruins. Who knows how much turned the scale, and whether just a little more strength and toughness in the iron would not have stood the ordeal; but the building has fallen because of cheap rotten iron, and all the ingenuity that contrived the structure is baffled and defeated. One other small instance, though it may seem a trivial matter;—the lamp-posts of London, the most conspicuous and oftenest repeated objects in the streets, and which are a disgrace to this city. They are common, clumsy, and ugly to a degree. If elegant, they might give a character and finish to the thoroughfares, but there is no public censor of taste, and a local Vestry Board ask for the old, old pattern; and, having invited tenders, obtain their pillars, painted and weighed, into store for something like 6*l.* 6*s.* a ton. When any one sees a lamp-post smashed by a passing wagon, let him look to the article that was supplied to the parish. Bad iron, and the core perhaps all on one side, will show what is done in open competition and rotten iron.

And if it be now asked, What is the remedy for this state of things? it would not be unfair to reply that this should rest with the professional engineer, who needs only to be acquainted with the deficiencies he has to deal with. But, at any rate, some suggestions or hints may be offered for consideration. The main thing to correct is the great uncertainty that prevails, and the more of which is removed the greater nicety can be given to calculations, and the greater reliance can be placed on them when they are made. At present there is no standard held up for imitation, and every one has his own notions on the matter. If an ironfounder is asked if his metal is "good," it would not be in his human nature to answer but in the affirmative; while, if he were asked if his iron would stand a specific strain named in exact figures, he would think twice before he said that which could easily be proved to be false. Again, an honest ironfounder would prefer to have this uncertainty removed. He would know then what was expected from him, and how far he could compete; while, at present, he may use irons the difference in the value of which may more than cover the margin between the highest and lowest in a row of tenders. And for the engineer how useful would this certainty be. Any experiments he might make, or experience he might gain, would be based on positive facts as to the quality of material, and he would know that in any successive work the same results would follow only where similar construction was combined with the same value of iron.

Nothing has been said here of the morality involved in the manufacture of good or bad iron; but when it is remembered how often human lives depend upon the structures designed for public use, and when engineers recall the failures that have occurred within their own experience from defective material, it will be acknowledged that the subject is one of the gravest importance.

THE HEALTH OF SWANSEA.

THERE are certain groups of our large towns in which commercial prosperity, inducing a rapid growth of population, has resulted in excessive death-rates. The cotton districts of Lancashire, the woollen districts of Yorkshire, the black country of Warwickshire and Staffordshire, the coal districts of Durham and Northumberland, and the coal and iron districts of South Wales, are the most conspicuous of these groups. The towns in these several groups have increased in population more rapidly than their house accommodation; and till lately their growth has been unheeded and untended by sanitary precautions; as a natural consequence, the overcrowding and neglected drainage and sewerage have resulted in high death-rates, with their usual heavy proportion of sickness, and, in too many instances, a disastrous mortality from cholera during the epidemic which prevailed last year.

Not one of the above groups of towns suffered so severely from cholera during 1866 as that in South Wales, comprising Merthyr Tydfil, Bridgend, Neath, Swansea, and Llanelly. These towns had for some time previously considerably contributed to the excessive town death-rates in England and Wales; but the result of that epidemic stimulated a greater sanitary activity in many of these towns, the effect of which is already appearing in the periodical returns of mortality. We have before us the quarterly returns of Mr. Ebenezer Davis, medical officer of health for Swansea, for the three months ending the 30th of September last. The report itself is concise and unpretending, but the figures are conclusive both as to the amount of useful sanitary work which has been carried out by the Swansea Local Board of Health, and as to the present satisfactory condition of the health of the town.

The borough of Swansea contained at the census of 1851, a population of 31,461 persons; these had increased in 1861, to 41,606; and crediting the town with a similar rate of increase since 1861, the present population would not be far short of 50,000. The deaths registered during last quarter in this population, were 221, whereas Mr. Davies states that the average number of deaths in the third quarter of the four preceding years (omitting from the comparison last year, when the deaths from cholera alone exceeded the usual deaths from all causes), was 250. These 221 deaths give an annual rate of mortality for the quarter under 18 per 1,000 persons living. In the entire town population of England and Wales, the death-rate in the quarter was 22·4; in the ten large English towns furnishing weekly returns, the rate was 23·8; and the lowest rate enjoyed in any of these ten towns for the same period, was 19·2 in Bristol. Swansea, therefore, for last quarter takes a very high place among our most healthy towns for last quarter.

With regard to the causes of death we learn from the report that the deaths from zymotic diseases were only 38 in the quarter against a previous average of 75, and of these 19 were due to diarrhœa and choleraic diarrhœa. Swansea, like most other large towns, suffered severely from diarrhœa during September, but most of the deaths were of infants under one year. There were, moreover, five deaths each from fever and whooping cough. The deaths from zymotic diseases formed 17 per cent. of the total deaths, against 16 per cent., the proportion in London. Of the 221 deaths in Swansea, 68 were of infants under one year of age; a proportion due in some manner to the fatality of infantine diarrhœa.

During the quarter 66 houses have been connected with long existing sewers, 106 with recently constructed sewers, and 95 houses have been supplied with water. No less than 172 nuisances have been reported by the four inspectors. Such facts as these are satisfactory evidence of the practical kind of sanitary reform which is being steadily carried out in Swansea, and which already appears to have borne fruit in the satisfactorily low death-rate last quarter.

We are aware that similar, if not yet quite so successful, sanitary activity prevails in at least one or two other towns of the South Wales group above alluded to: so we may fairly hope that these towns will not much longer contribute to the excess of town death-rates.

MODERN ART IN FLORENCE.

AMIDST the intense excitements and momentous questions that are now occupying minds and absorbing attention in Italy, we can hardly expect to find any interest awake for things pertaining to the serene sphere of art or intellectual produce. Yet in this city the claims in that order have not been forgotten, even at a period when all are convinced that a crisis involving the welfare and honour of the nation has arrived. We might describe some of the recent demonstrations in Florence as themselves presenting the most impressive subjects for modern art, especially one scene on the piazza "Della Signoria," where the dark masses of an angrily-excited crowd and long files of mounted troops, gleaming in war array, were at intervals made visible by flashes of lightning that threw lurid glows on the Palazzo Vecchio and the Loggia of Orcagna, momentarily dispelling the darkness of a starless night, and showing what historic architecture formed a background to that apparently menacing scene. It must be added, however, for the credit of these good citizens, that Florentine crowds, however noisy and disposed to vent their feelings in terrible utterances, are, in the long run, far from dangerous, altogether docile and manageable, and little inclined to anything like brutality.

We still hear of the new projects for the façade of the Duomo; and lately has appeared a letter from one architect of note to another, in which the design by the latter, Signor Cipollo, is highly extolled by his correspondent, Signor Donna, and it is advised that all the designs prepared since the last exhibition should presently be made public, and that the artists should choose a point of view in which the façade is seen obliquely, instead of that immediately in front,—the oblique being the view presented in the drawing of Cipollo's composition. The design most generally noticed, and commended, among all recently made public, is that of Lasinio, now to be seen at all the principal printsellers' and bookshops in Florence; and the character of which, a richly-elaborated Italian Gothic, we have already noticed. Paying a visit to the Duomo the other day, we found it in a state of temporary desecration, to be entered by but one lateral door, and occupied by workmen with ladders and scaffolding, engaged in the process of a general cleansing, long wanted, and much to be desired for the venerable edifice. At various points of the exterior, the sharply-defined contrast between the white and green marbles lately inserted and the weather-stained surface around, shows the activity with which such restorations are now, as they have long been, progressing. At the Accademia were exhibited, till the other day, some sculptures, groups and statues, that excited attention, winning notice on the whole favourable from the press. Victor Emmanuel at the battle of Palestro, on horseback, with a dead soldier stretched on the ground, and three Zouaves addressing him to urge more regard for his own safety as he is dashing into the thick of the contest, is a group of statuette size by Corelli, marked by great spirit and truthfulness, scarce attempting any idealization, yet making the most of modern costume, and successful in the intelligible presentment of the moral interest. Raffaelle, as a youth, seated whilst drawing, and Columbus, also as a youth, seated on a rock, with a book and chart on his knees, are statues about life-size, by Zocchi (both to be sent to commissioning parties in New York), the latter far surpassing the former, as it struck us; for the sculptor's "Raffaelle" seems tame and conventional, but his "Columbus" satisfies by intensity combined with simplicity; the earnest gaze that seems looking into a far-distant future, with endeavour to estimate unknown possibilities, giving to that boyish face something accordant with the destinies, and with one's own ideal, of the discoverer of new worlds.

At the studio of Consoni—certainly one of the first among living Tuscan sculptors—a life-size statue of Victory, subscribed for by different Italian municipalities in order to be presented to the King, and eventually, it is believed, to find its place in the Pitti gallery, deserves more than common notice for the character of intellectual power and elevated repose distinguishing it: seated on a rock she is inscribing on a laurel-wreathed shield the glorious names of Montebello, Palestro, and S. Martino; her figure being nude in the upper, amply draped in the lower part; her attributes recognisable in the moral expression, without any help from such symbolism as at once explains them. A wounded Amazon, defending herself on one knee in the combat, is another statue by the same artist, which was chosen by the commissioners for the Paris Exhibition. More interesting is the monumental figure of the Countess Matilda, recumbent in regal costume, and crowned, on an ornate sarcophagus; an affecting presentment of the historic personage in death that sends the mind through the vicissitudes of the great drama she acted her part in during life; this also, chosen by the commissioners among Consoni's works deemed worthy of a place at Paris, was to have been, but was not, sent thither.

The fate of art-works in the cloister might be uncertain in consequence of the laws lately passed against that institution, but for the measures well directed towards the preservation of all that is valuable. A circular from the Minister of Finance to the prefects of provinces orders that report should be made to government as to all objects found on monastic premises of such character as to claim respect, in order that buildings as well as the works of art they contain may be properly cared for, and authorities decide what should be preserved intact, what churches should, together with their decorations, be maintained for worship. A committee has been appointed to provide for the preserving of all that possesses artistic character, in monumental and other forms, on the monastic property exposed to sale.

The new streets, and the new "Lung' Arno," on the left bank of that river, are progressing in a manner that promises well for the enlargement and ultimate transformation of the city that it is desired should *not* be the permanent capital of Italy.

METAL FONTS.

WURTZBURG CATHEDRAL.

THE material used in modern fonts is generally stone, but we could point out examples in which costly marbles are introduced. We do not, however, know of a single example of a *metal* font, if we except one or two cast-iron abominations painted in imitation of stone, which are to be found in churches in the manufacturing districts of the North of England.

In the Middle Ages fonts were frequently made of bronze and brass. The examples to be met with in Belgium and Germany are very numerous and beautiful, and of every period from the twelfth to the seventeenth century. One of the earliest we know of is that in the cathedral at Hildesheim. This interesting work of art is in a most perfect state of preservation. It is bucket-shaped, and supported upon four feet, each of which consists of an allegorical figure representing one of the four rivers of Paradise, with the name inscribed upon it: on the first is the word "Phison," on the second "Gehon," on the third "Tigris," and the fourth "Euphrates." Each figure holds a water bottle in its hand. The basin of the font is ornamented with an arcade of four trefoil-headed arches, each arch of which contains an appropriate subject in low relief;—thus, the Israelites crossing the Red Sea, the Baptism of Our Lord by St. John, &c. The cover of this font is conical, and surmounted with a very beautiful finial: round the cone is an arcade. This font is a work of the earlier part of the thirteenth century.

A remarkably fine bronze font exists in the cathedral at Würzburg, and of this we gave an illustration in our last*, where, by a rare accident, it was made to take the place of a view of an ancient bronze measure of the fifteenth century, at Ochsenfurth, and is described accordingly.

The font is drum-shaped, and surrounded by six double niches, with crocketed gables, and separated by buttresses crowned with pinnacles. These double niches contain subjects in full relief; amongst which may be noticed the Crucifixion, the Resurrection, the Baptism of Our Lord, and the Annunciation. The figures are about 14 inches high, and very well modelled. The shape of the Cross in the Crucifixion is remarkable, and resembles the "Y cross" on the back of most ancient vestments. This font is cast in separate pieces, and then put together with bronze screws. Round the rim is an inscription, with the date 1279.

In the cathedral at Munster is a bronze font of the earlier portion of the fourteenth century. It is chalice-shaped, richly ornamented with statuettes, evangelistic symbols, &c. This is one of the earliest chalice-shaped fonts we know of in Germany. In the fifteenth and sixteenth centuries they are, however, by no means uncommon. A font of very singular design is to be seen in the cathedral at Louvain. It consists of three separate basins standing upon thin legs. The lever for raising the cover is a remarkable piece of metal work. The fonts are bronze. Five fourteenth-century fonts exist at St. Sibald's, Nuremberg, and the cathedral at Maine. These fonts are also bronze. A remarkable font exists in the church at Ochsenfurth.

Bronze fonts of the latter part of the fifteenth century exist at St. Stephen's Church, Prague, and St. Mary's, Lubeck; and a brass one in the church of St. Columba at Cologne. This font is chalice-shaped.

The churches of St. Maria in Capitolis and St. Peter in Cologne, contain brass chalice-shaped fonts of the sixteenth century.

In England, metal fonts were never much used; however, in the Abbey Church of Dorchester, Oxfordshire, is one cast in lead: it is probably a work of the earlier part of the twelfth century.

In the Great Exhibition of 1851 was a modern font of bronze, from the designs of M. Viollet-le-Duc.

* See p. 820, *ante*.

ST. ALBAN'S NEW GAOL.

THE new prison at St. Alban's, Herts, was opened for prisoners on the 1st instant. It has cost about 14,000*l.*, and is situated on the north-east side of St. Alban's. The building stands on an eminence, from which it may be seen for miles round.

The architects are Messrs. Martin & Chamberlain, of Birmingham, and the contractor is Mr. Young, of Lincoln; clerk of the works, Mr. Wilcox. The building is of brick, with facings of dark blue Staffordshire bricks and Bath stone. It is constructed on the same plan as the county gaol at Warwick, and several of our large modern prisons. It is in a castellated style of architecture. Over the gateway there is a portcullis. The governor's house stands on the right of the gateway, and the chief warder's on the left. The front, with its entrance of lofty proportions, is surmounted by a large air-shaft, which is 60 ft. high from the entrance steps. This shaft conveys fresh air to every cell and other apartment in the building.

There is a spacious central hall, with long corridors to the left and right. This hall is lighted by a lofty lantern dome, which rises about 64 ft. from the basement floor. The corridors run in a straight line the whole length of the building, or about 150 ft. Along these corridors run three tiers of cells, with galleries running in front of the two upper tiers. The two corridors are respectively distinguished as the "A and B" wings. There are seventy-eight cells for the male prisoners in the corridors, and each cell is numbered. A cell is 12 ft. long, 7 ft. wide, and 9 ft. high, with a small window, which gives a not too cheerful light. The cell is provided with two flues. A grating is provided, through which hot air is let in for warming the cell. The vitiated air passes out through a grating above the floor of the cell, up the walls, and along the horizontal flues in the roof, to the shaft, outside the building.

The cells are heated by means of hot-water pipes, which are let in at different points along the wall. Each cell is lighted with gas, the tap being placed outside the cell, so that the warder can turn off the gas without entering. In the centre of the cell door is a little trap about a foot square, called a ration-trap, opening from without by a spring. Each cell is provided with a cistern holding eight gallons of water, which is conveyed to the cell by pipes from the upper stories. The supply is so regulated that the prisoner cannot be cheated out of his allowance of eight gallons per day, nor obtain any more than that quantity. In each cell is a washing bowl with a tap over it, and a water-closet with its trap. In the walls of the cells, about 12 in. from the floor on each side, are four strong staples, on which is swung the prisoner's hammock. The door closes with a spring lock, of which the warder has a key, and the governor a "master key." A cell locked by the governor cannot be opened by the warder, and by this means the governor can, when he pleases, exercise a personal supervision over any prisoner. In the cell door there is a glazed inspection hole, rather larger than an ordinary eye-glass, by means of which the warder can at all times overlook the cell and the inmate. It enables prisoners to communicate with the officials. The prisoner pulls a handle drawing out a spring, which strikes upon a gong at the end of the corridor. When pulled the spring at the time it strikes the gong throws out a square piece of iron on which is marked the number of the cell from which the gong has been struck.

Near the entrance-hall is the visiting justices' room, a retiring-room, a waiting-room, the offices of the governor and chief warder, reception cells, bath-rooms, an examining-room, and a visitors' room. On arriving at the gaol, the prisoners are placed in the reception-room. They then pass to the examination-room, where they are examined by the surgeon. After being divested of their clothing, which is placed in a fumigating oven, they are compelled to take a tepid bath. After this generally very needful operation, they are supplied with the prison uniform, and placed in their respective cells. There are two separate cells outside the entrance, for prisoners afflicted with infectious skin disease, and a dead-house also outside the entrance. Attached to the infirmary are a surgery and a room for the infirmary warder. The chaplain has also an apartment. In the basement story are the workshops for the prisoners, called "associated rooms," which are a modification of the separate system. The kitchen is a large apartment. The prisoners' food is raised from the kitchen by means of a shaft. The scullery adjoins the kitchen, and near it are the bake-house, potato store-room, meat store-room, ordinary store-room, and an officers' mess-room.

There are two punishment cells in the male prison, in which prisoners may be placed in solitary confinement for three days, for breaches of prison discipline. These cells are provided with double doors, so that no sound can reach the ear of the prisoners confined in them. There is a visiting room, where prisoners at rare intervals are allowed to see their friends.

The chapel, which is in the upper part of the north side of the prison, is a spacious structure in the Gothic style.

The arrangements of the female prison (which communicates with the other part of the prison on the ground-floor) are much the same as we have described.

The works in common with the new gaol were finished by Messrs. Kirk & Belstone, as sureties for Mr. Young, the contractor. The heating, steam, and treadwheel apparatus, with the pumps, were supplied by Messrs. Haden & Son, of Trowbridge, Wilts; and the works in connexion with the water-supply to the gaol were carried out by Mr. Whilworth, of Birmingham.

THREATENED DESTRUCTION OF THE GATEHOUSE (OR OLD PRISON) OF ST. ALBAN'S ABBEY.

THE inhabitants of once mitred, and now disfranchised, St. Alban's are in a divided duty "anent" what is now to be done with their old gaol, a genuine piece (in the main) of ante-Reformation or Dissolution Gothic, and a part (ere Henry VIII. and Thomas Cromwell were omnipotent and unsparing) of the great abbey itself.

This old gaol (now no more) was the gatehouse of St. Alban's Abbey, and very fine it is. Its central archway, with its great span and bold groinings, cannot be forgotten by any one of taste who has seen it. Abbot Thomas de la Mare, of whom there is a fine monumental brass in the abbey, was the fortieth abbot of St. Alban's, was its founder, and (it is conjectured) its architect as well. St. Alban's has now got a new gaol of its own, at the London end of the town, close to the London road, high-placed, castellated, and baronial, with a prison look of

its own, compatible with security and architectural propriety. It is much admired.

Having of late newly restored the famous old clock-tower of St. Alban's, and turned the tower into a telegraph station (a most appropriate use for it), and added a new and excellent clock, let the authorities of St. Alban's turn their deserted gatehouse-gaol into something useful and appropriate,—and at once. Touching the likely and to-be-deprecated fate of this interesting gatehouse, the *St. Alban's Times* has said what follows:—

"We sincerely hope that so venerable a relic of antiquity is not doomed to destruction. We feel sure that the magistrates of the Liberty will never suffer such an act of Vandalism to be committed. We would again remind our readers of the suggestion which has been made to convert the old building into a house for the Grammar-school, and the governor's house into a residence for the master, by which means the beautiful lady-chapel may be recovered from its present degradation, and restored to the Abbey Church."

There is in St. Alban's a "Young Man's Christian and Literary Association," with insufficient rooms; and there is, in the same place, a "St. Alban's Architectural and Archæological Society," without any local habitation at all. Now, it appears to us that this noble Gatehouse of St. Alban's Abbey (it is the property of the corporation) might be applied with great advantage to the wants and purposes of both societies, while, what is so much needed is "A Museum of St. Alban's and Hertfordshire Antiquities," for the county is rich in early British and Roman remains,—witness Mr. R. Grove Lowe's collection,—and the town and bowels of the earth are both rich in treasures, relics of Roman Verulamium and of the civil wars of York and Lancaster.

Another *seeming* difficulty is distracting St. Alban's. The Abbey parish wants a *cemetery*. The present burial-ground on the north side and west end of the Abbey is crammed with the dead, and buried architectural ruins. It is here, on the north, that men in authority would have the new St. Alban's Cemetery. We hope not,—it would be too near the church, too near to human habitations, and would eminently disfigure one of the noblest abbeys in the three kingdoms of Queen Victoria.

The most celebrated "gate-house" in Great Britain was that which was once a part of the mitred Abbey of Westminster. Sir Walter Raleigh was led from his last prison, the Gatehouse at Westminster, to the scaffold in Old Palace-yard. Sir John Eliot was taken from it to the tower. Here Colonel Lovelace sang and wrote his divine poem, "To Althea from Prison,"—

"Stone walls do not a prison make,
Nor iron bars a cage;
Minds innocent and quiet take
That for a hermitage."

No traces of it are now to be seen. We remember in early days to have had pointed out to us some architectural remains of it, which did little more than mark the site and call up miscellaneous memories of other days.

WORKS IN PARIS EXHIBITION.

THE ARCHITECTURAL ASSOCIATION.

THE usual meeting of members was held at the House, in Conduit-street, on Friday evening (the 8th inst), Mr. R. Phené Spiers, president, in the chair.*

Mr. J. D. Mathews (hon. secretary) stated that Mr. Haywood, the architect of the Holborn Valley Viaduct, had kindly offered to allow the members of the Association to inspect the very interesting works in progress in connexion with the improvements now taking place in Farringdon-street; and that the visit would be paid on the afternoon of Saturday, the 16th inst. He also announced that a proposition had been made for the election of honorary members of the Association, and that the suggestion would be taken into consideration on a future evening.

The Rev. C. Boutell then proceeded to make some observations in connexion with the archæological collections of the Paris Exhibition. He regarded the latter as constituting the culminating point to such exhibitions. It was in the year 1797 that the first great exhibition of art and industry ever took place, and it was held on the site of the present building in the Champs de Mars. In each subsequent exhibition a development was observed which made the last more important and interesting than its predecessors. The exhibition just closed was, in many respects, the most important of its race. The arrangement of the building itself (a concentric oval, with a garden in the centre, and curves leading to it) was admirable, and not the least interesting portion of its contents were its archæological illustrations. The idea of including archæology originated with the Emperor himself, who wished to show what mankind had done in all generations, and thus to form what might be termed a history of labour. In his opinion England was very well represented at the Exhibition; at the same time, he was bound to confess that we might have done much better, and that our contributions suffered in public estimation on account of imperfect classification and arrangement. The earliest specimens of human handicraft among all nations, such as articles formed of flint and bone, were characterized by the same features; but some degree of taste and feeling was to be traced even in the formation of the rudest implements and weapons, showing in certain instances a more skilful hand and a more observant eye. These early specimens of inventive art had been brought together from various countries, and were so typical of various primeval races, that it seemed a pity to see them dispersed. Among the most extraordinary objects exhibited in the archæological collection were the crystal vases of Hungary, contributed by Austria. These were, he believed, without a parallel in the world. The collections of Italy, brought together under the careful superintendence of Signor Castelani (including Ceramic ware and personal ornaments in the precious metals) were also most valuable for purposes of comparison. Most interesting, too, to architects were the drawings and models of architectural monuments in France. The preservation of those relics was declared by the Government to be a matter of public interest and importance, and he hoped the architectural body in England would take up the subject and bring its influence to bear on our own Government to induce them to follow the example set by France. If, however, this could not be done, he ventured to suggest to the Association the desirability of carefully examining, measuring, and drawing those monuments, so that an accurate record of them might be preserved to the country. The archæology of the East was also extremely valuable, and amongst the most curious objects exhibited was a statue carved in wood of a human figure, which was supposed to be the oldest specimen of the kind in the world. It was found in one of the Egyptian tombs, and was believed to be of the period of Abraham. The personal ornaments found in the same locality were also very interesting. Nothing, he thought, was more remarkable in connexion with the Exhibition than the manner in which various works were reproduced. In Italian works, Signor Castelani was satisfied with reproductions of the antique, and in this respect he was so successful that it was almost impossible to tell ancient from modern works. Eight gold medals were awarded for goldsmiths' work; and of these six were given to France, one to England (to Mr. Phillips, of Cockspur-street), and one to Italy (to Signor Castelani). Had another medal been given to England, he believed it would have been awarded to Mr. Brogden. Illustrations of the application of ancient art to modern uses were not wanting in the Exhibition, and he was particularly struck by attempts by different persons to apply Egyptian and Etruscan art to objects of domestic utility. In the former case, an Egyptian tea service was incongruous and unsuitable; while in another, Etruscan forms were found to be all that could be desired. In the latter case, the work was the production of M. Boucheron, of the Palais Royal, who had also exhibited the revival of an ancient art,—namely, translucent enamel without any metallic back. Referring to the "democratic jewelry" exhibited at Paris, and purchased for the South Kensington Museum, Mr. Boutell observed that the design was so beautiful that the best consequences might be expected from its introduction into this country. This jewelry was in common use among the humbler classes in Italy, and he was sorry to say that it had been of late to some extent displaced by Birmingham work made from debased French models. Among other objects in the Exhibition important to architects were Signor Salviati's reproductions of glass for glass-painting. Referring in conclusion to the English contributions, and to the importance of the fact that much of the prosperity of the country and of its progress, in an architectural sense, depended upon the use made of the arts of antiquity, he observed that if the English collections were undervalued at home or abroad, there was this lesson to be acquired, that even if what we sent was as good as that of any other country, it was no better. This showed the necessity of study. We had great collections both at the British Museum and at South Kensington, but did they teach the public mind? It would not do for a country like England to suppose that, because she was strong, there were not other nations equally strong.

Mr. N. White called attention to some ornamental doors and door-cases from Norway exhibited at Paris, which were supposed to be of ninth or tenth century work. They were covered with Runic characters, and were probably originally used as the facing of some wooden construction. With regard to the remarks of Mr. Boutell, as to the necessity of keeping pace with other nations in art-workmanship, he thought it would be vain for us to attempt improving upon the work of others until we were able to copy the best things of the past.

Mr. R. W. Edis, although quite ready to recommend the careful study of archæology, was not prepared to advocate architectural imitation, which he regarded as a great evil. He would give all the honour that was due to the works of the past, but he would regard them in the light of guides, and not as objects of servile imitation. He regarded it as in the last degree humiliating that we so seldom aspired to originality, and mentioned as an illustration of how not to do anything new, that when a gold box in which to place the liberty of the City of London, on its presentation to the Sultan by the Corporation had to be designed, nothing could be devised better than a monstrosity covered with mosques, minarets, and crockets, with a space for the autograph of the Lord Mayor!

The Chairman, referring to the want of proper classification and arrangement in our national collections, observed that the visitor, when entering the museums of France or Germany, might go in comparatively ignorant and come out a connoisseur, while in England it would be necessary to go in as a connoisseur. The only specimens of English archæology which he was able to discover in the Paris Exhibition were confined to Chelsea China, Indian photographs, and some plate of the time of the Georges. He recommended the members of the Association to act upon the hint of Mr. Boutell, and during their vacation rambles endeavour to measure and sketch the most interesting historical monuments of the country.

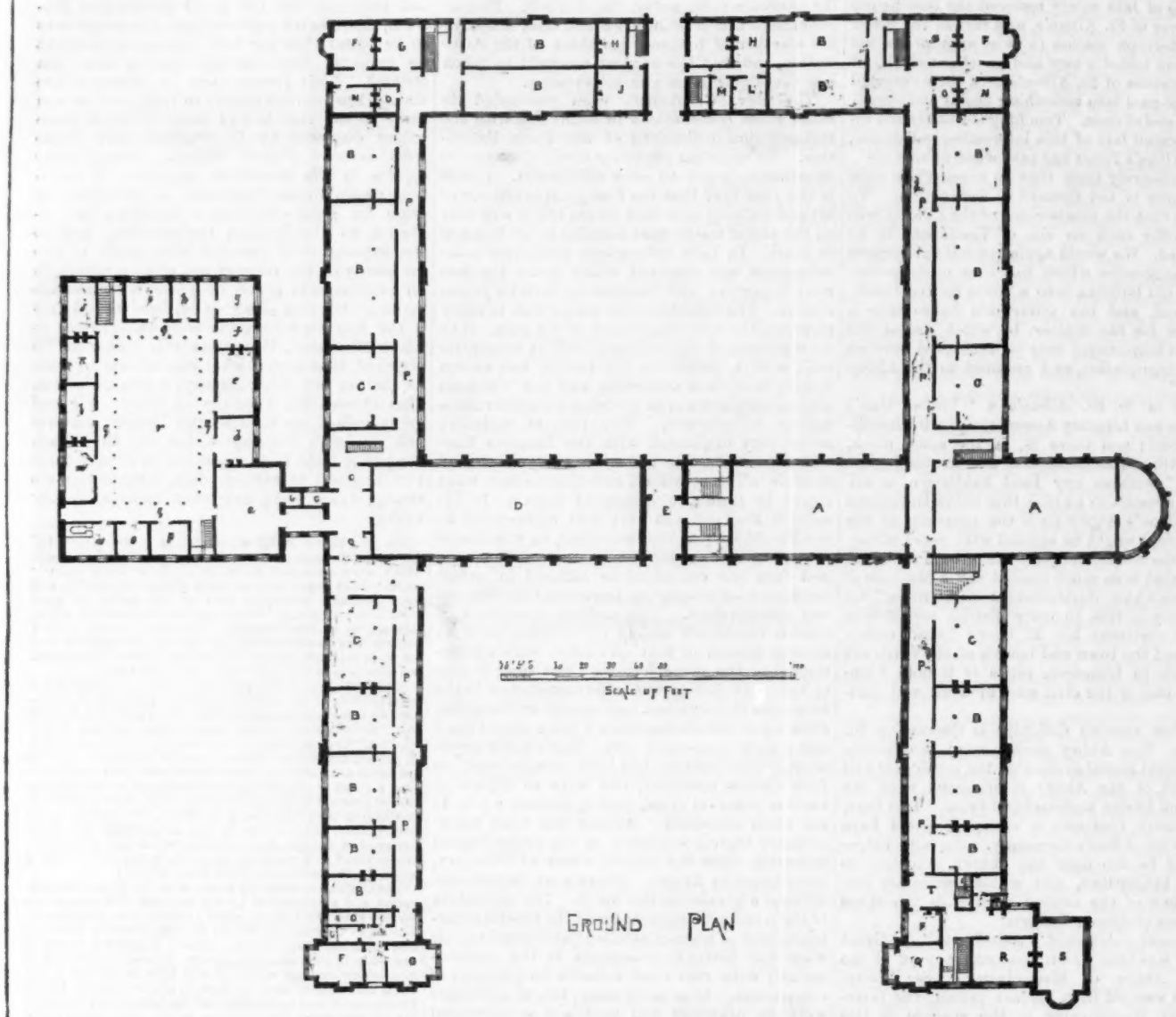
* The following gentlemen were elected members of the Association:—Mr. S. E. Smith, Craven-street, Strand; Mr. G. Borer, Langdale-road, Peckham; Mr. Josiah Rose, Pitfield-street, Islington; Mr. J. B. Waring; Mr. C. Price, Argyll-street; Mr. F. W. Tucker, Argyll-street; Mr. N. R. Knapp, South-crescent, Bedford-square; Mr. J. Bull, Manor-street, Clapham; Mr. R. Negrove, Camberwell New-road; Mr. A. Smith, Cambridge-street, Pimlico; Mr. H. W. Saunders, Hill-street, Peckham; Mr. F. J. Alexander, Hornsey-road; Mr. A. Lewis, Harrington-street, Regent's Park; Mr. T. A. Adwinkle, Cleveland-road, Islington; Mr. J. T. Lacy, Guildford-street; Mr. Bernard Smith, Devonshire-terrace, Notting-hill; Mr. F. B. Thick, Camberwell; Mr. H. W. Wilson, Whitehall-place; Mr. Scores, Whitehall-place; Mr. J. O. Scott, Adelphi; Mr. C. Leonard, Wellington-square, Chelsea; Mr. F. Stalker, Finsbury-place; Mr. R. Wild, Highbury New Park; Mr. Harrison, Brighton; Mr. A. Bailey, Charing cross; Mr. H. G. Furner, Gower-street; Mr. E. R. Burton, Craven-street; Mr. J. T. Bressey, Wanstead; and Mr. C. F. Booth, Albany-street.

ST. SAVIOUR'S COLLEGE, ARDINGLY, SUSSEX.

ST. NICOLAS COLLEGE, LANCING, AND ITS SCHOOLS.

THE third or "lower middle-class school" in connexion with the College of St. Nicolas, at Lancing, is being erected at Ardingly, in Sussex, on the slope of a hill overlooking the beautiful valley of the Ouse, and in sight from the great viaduct on the Brighton Railway between Hayward's Heath and Balcombe stations. A general view and plan of the school (or St. Saviour's College, as it is to be called) is given. It is designed to hold 1,000 boys of the superior artisan, or small tradesmen class, and, for the small sum of 14*l.* per annum, to board and educate them thoroughly, the education being based on church teaching. It will be entirely self-supporting.

The first stone of the buildings was, as it may be remembered, laid by Earl Granville, on the 12th day of July, 1864, and since that time the works have been pushed steadily forward, and are now far advanced. A reference to the plan will show the general scheme. It consists of two large quadrangles, the lower one being open on the southern side. The two wings of the lower quadrangle have accommodation for 400 boys in eight dormitories of 50 boys each, the ground floors being occupied with class-rooms, with masters' rooms at the end. The head master's house joins on to the south end of the east wing. The cross buildings between the two quadrangles comprise the upper and under dining-halls, had the two great school-rooms which occupy the whole space under the chapel. A tower stands between the hall and the chapel which is reached by a staircase communicating with the ante-chapel.



LOWER MIDDLE-CLASS SCHOOL, ARDINGLY.

The upper quadrangle has on its three sides double dormitories for 600 boys, with class and master's rooms, and separate school-rooms for the very young boys. The kitchens and offices stand westwards of the dining-hall, and form a distinct quadrangle.

The ground falls rapidly towards the south-east, a terrace will therefore be carried along the southern front and the quadrangles kept on one level; below the terrace is a steep slope with a lake at the bottom. The river Ouse forms the south-east boundary of the estate.

The style adopted is simple Early Pointed, with alternate two, three, and four-light cusped windows in the wings, and three-light traceried windows in the upper dining-hall. The material is brick, with red facing bricks from St. John's Common, Chailey, and elsewhere. The windows, arches, dormers, bands, and other architectural features are of the local sandstone of a light brown tone. The roofs are covered with brown tiles from St. John's Common. The fittings are of a very simple description, with iron frames and window casements. The estimated cost is about 40,000*l.*

The St. Saviour's boys are at present located in temporary buildings in the town of Shoreham, and will be removed to the Ardingly buildings as soon as they can be made ready.

Lancing.—Besides these schools the college have also during the last two years carried out very important works at the parent institution at Lancing. The great dining-hall, 100 ft. long and 38 ft. wide has been completed, and an open arched roof erected on it, surmounted by a lofty lantern of oak, with a shingle spire. A series of stone dormer windows is erected above the cornice to light the roof; they are 24 ft. high to the finial, and of two lights, with traceried heads, with richly carved pinnacles and crocketed pediments. An ante-hall of equal height and width, and 40 ft. long, is erected at the north end of the hall, and opens into its gallery by an arcade of three arches, with polished granite columns. An elaborately moulded and carved bay window of stone reaches the entire height of the ante-hall, of six lights, the angles being ornamented with canopied niches and shafts. The kitchens adjoin the ante-hall, and are now being commenced. The grand staircase is in course of erection which leads from the cloister to the ante-hall. It is groined with stone, and is of three double bays of vaulting, supported on two clustered shafts, the north end being filled with richly moulded two-light windows. Besides these important additions, a wing of the upper quadrangle has been built with four additional domitories and master's rooms.

Denstone.—Steps are now being taken to commence at once the erection of a new school on the model of St. John's, Hurstpierpoint, at Denstone, near Ashbourne. It is for 400 boys, and will comprise chapel, hall, dormitories, master's house, &c. A site has been given by Sir J. Perceval Heywood, bart., who also gives a large donation to the building fund. It is intended by the founder that this school shall be the first of a series similar to those in Sussex. The plans for this school, as well as for the other buildings at Lancing and Ardingly, are by Mr. W. Slater & Mr. R. Herbert Carpenter, architects.

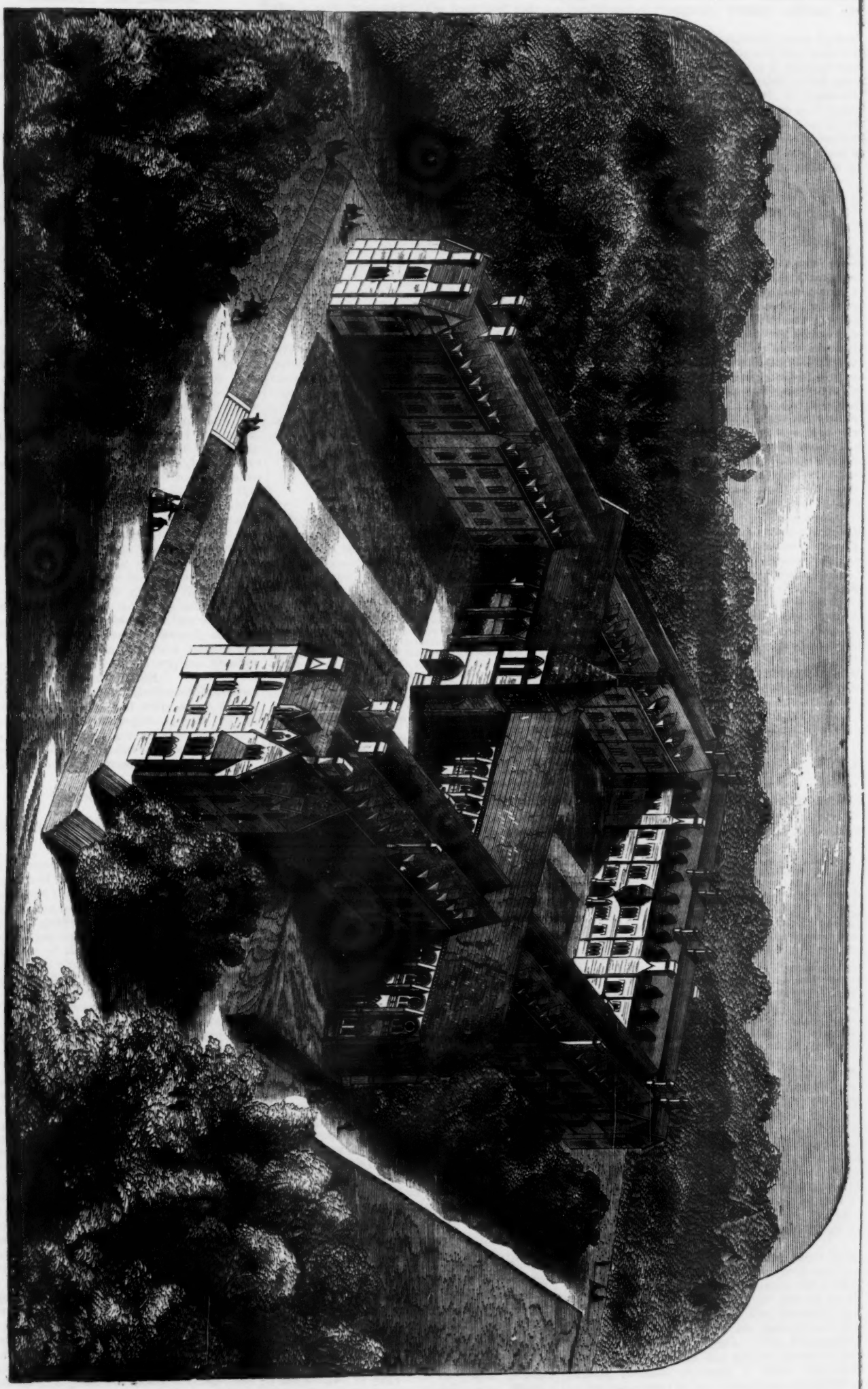
It is also in contemplation to commence next year the great chapel at Lancing, which will be on a scale sufficient to serve for great gatherings of all the schools, as well as for the college itself. It will have an apsidal choir and ante-chapel, with north and south aisles, groined for its entire length; a great western tower, 220 ft. high, and a tower on each side of the apse. The whole will have a lofty vaulted crypt underneath. The dimensions of the chapel will be 200 ft. long from the west wall of the ante-chapel inside, to the inside of the east wall of the apse. The width across the choir is 32 ft., and including the aisles, 62 ft. The height from the choir floor to the crown of the vault is 80 ft.

REFERENCES.

OFFICES.

a. Kitchen.
b. Lift.
c c c. Serving lobby.
d. Scullery.
e. Servants' hall.
f. Pantry.
g. Knives.
h. Vegetables.
i. Dairy.
j. Women servants' room.
k. Housekeeper's room.
l. Housekeeper's stores.
m. Coals and wood.
n. Bake-house.
o. Bread store.
p. Store.
q. Covered way.
r. Yard.

A A. School-rooms, with chapel over.
B B B. Class-rooms.
C C C. Wardrobes.
D. Lower dining-hall.
E. Tower.
F F. Under-masters' sitting-rooms.
G G G. Under-masters' bedrooms.
H H. Kitchens.
J. Matron's room.
K. Porter's room.
L. Scullery.
M. Store-room.
N N. Servants' room.
O O. Pantry.
P P. Corridor.
Q. Head-master's study.
R. Head-master's dining room.
S. Head-master's drawing-room.
T. Hall.



ST. SAVIOUR'S COLLEGE, ARDINGLY, SUSSEX.—Messrs. Slater & Carpenter, Architects.

COLLIERY EXPLOSIONS.

WARNING was lately given in the *Builder* that the season was approaching when, from atmospheric causes, explosions and other accidents in collieries might be anticipated where the utmost care was not taken to prevent them. That season seems now to have begun, and as before with several almost simultaneous accidents. At the Ferndale Colliery, in the Rhondda Valley, no less than 200 colliers (less or more), have been killed, it is believed, by an explosion. And yet this is said to be one of the best managed collieries in the district, with a good system of ventilation for such deep and fiery workings.

Twenty-one men have been seriously injured by an explosion at Homer-hill Colliery, near Stourbridge, in Staffordshire. All the men are seriously injured by burns, and three of them, it is said, have since died. Explosions of fire-damp are of very rare occurrence in South Staffordshire, and at the time the explosion occurred between 2,000 and 3,000 cubic feet of air were circulating through the workings, in some places of which the draft was so strong that the candles had to be protected by a screen. It is considered that the fire-damp had been liberated by a fall of material from the roof.

Three men have been killed by an explosion at Silverdale Colliery, also in Staffordshire. Mr. Wynne, Government inspector, said at the inquest that he considered the mine was in an unsafe state, but the accident might not have happened if two of the deceased had not taken off the caps of their lamps. The jury found that the deceased met their deaths by accident, which resulted from their own imprudence. They considered the workmen ought to be visited frequently by overlookers, and that the proprietors of the pit should as soon as possible effect a better state of ventilation in the mine.

At the Eppleton pits of the Hetton Coal Company, near Durham, a serious conflagration has taken place, by which all the woodwork of the Jane pit has been destroyed, and the lives of about 200 men and boys jeopardized. By good fortune there was a way out through another pit. One man has died.

The Shankhouse pit, at Cramlington, Northumberland, has been deluged with water, by an inbreak from an old pit adjoining, and 150 pitmen have made a narrow escape with their lives, but a good many ponies have been drowned, and the pit property is much damaged.

ST. PAUL'S AND THE MAIN CAUSEWAY OF LONDON.

A PLAN, recently given in the *Builder*, for the opening out of the wide space surrounding the cathedral, and the removal of the massive iron railing, with its heavy and decaying stone base, having met general approval, an allusion to a few details may not be amiss.

Separation of the great torrent of traffic into two courses, by the north and south sides, would be a great public advantage, whilst it would benefit the side of Doctors' Commons, and relieve St. Paul's Schools and the east end, which, from its stinted width, is wholly inadequate as a driftway; and the diversion of the spring tide of City traffic to the north side, could in nowise injure the great retail houses in St. Paul's Churchyard, whilst it must confer an inestimable easement upon the important wholesale houses on the south.

The great width which might be thrown in on the north, would allow at the narrowest part (now only 6 ft.), a driftway of 40 ft., and a footway of 12 ft. here by an alteration of the circular steps; and the opening out of the large space of the churchyard now blinded off, would give ample scope for cab-stands at either end of the cathedral, leaving room for resting-places, to harbour the carriages of purchasers, and a footway for pedestrians at either side of the driftway.

As to ulterior improvement in surrounding houses, that would necessarily follow, as in all other quarters when opened out. The widening of Newgate-street, now nearly complete, will relieve that line to Cheapside; and then it will occur to any observer from St. Martin's-le-Grand that there is one house, at the corner of Paternoster-row and the Churchyard, which projects just 10 ft. beyond the street frontage, and masks off the east end of the cathedral, whilst it would to some extent obstruct the proposed new route. Remove this house, and the new line of street would be in direct alineation, and would offer a noble causeway to the Bank well befitting this important position in the City's core.

The effect of wide open spaces round majestic buildings is evidenced by the Duomo at Milan, the Madeleine at Paris, and by the *one-sided view* of our own Abbey of Westminster. In the Strand, upon the same line, the church of St. Clement's Danes stands isolated in a very large space, with a wide street encircling an ovular enclosure; the small church of St. Mary-le-Strand being similarly surrounded by driftways. In these localities great improvements will, doubtless, follow the completion of the New Law Courts; such as the clearance of Holywell-street and Temple Bar, and the withdrawing of ten houses between the Bar and Chancery-lane, at least 6 ft. backward. The traffic of the line will increase in a corresponding ratio, and, therefore, direct and commodious thoroughfares to the Bank and to London Bridge will become an inevitable necessity.

Such a route will give a better access to St. Paul's, which, although it has two portals, is entered only by that on the north side; if there be noise of rollage, the division of traffic, or diversion of a portion to either side, would rather diminish than increase it; and the removal of the heavy and invidious *enceinture* of iron, whilst it gave freedom of circulation to the public, might make way for a ground or basement line more consistent with the dignity and freedom of the stupendous design. Q.

YORK SCHOOL OF ART.

THE annual meeting of the subscribers to this school has been held, in the large room of the institution, Minster-yard. The Rev. Canon Hay occupied the chair.

Dr. Procter read the report, of which the following is an abstract:—

During the past year there has not been much to distinguish the working of the school from that of former years. It has been with pleasure that the committee have had to refer to the steady advancement of the pupils, and the superior excellence of the works produced by them in each succeeding year. The number of pupils in attendance on the various classes during the year has been fifty-one. The committee have to acknowledge with thanks the gift of a carved Ionic capital from Mr. Wolstenholme, of this city. Mr. J. P. Pritchett also has given to the school a valuable collection of casts of modern ornamental and architectural details. The treasurer's account for the past year is not so satisfactory as the committee desire, showing as it does a balance due to him of 43*l.* 1*s.* 2*d.* Owing to the reduction in the Government grants, the income of the school is barely equal to the ordinary expenditure, so that any special expenditure has to be met by donations or special effort. No donations have been received during the year. A prize fund has been subscribed for by several gentlemen of the committee.

Mr. J. G. Fitch (Government Inspector of Schools) said he thought that the report, though it did not declare brilliant success, with regard to real and valuable progress, told a story modestly, and worthy of the recognition of the meeting. The report and the observations of Mr. Swallow, the head-master of the school, had called attention to a subject of considerable importance—he meant in reference to a deficiency in the matter of technical education. This had been a subject of many specific addresses which had been lately made to the Crown in connexion with the Paris Exhibition.

THE ARCHITECTURAL MUSEUM.

IN consequence of the unexpectedly high amount of the lowest tender for the erection of the proposed new building in Bowling-street, Westminster, further efforts are needed to raise the required sum. The Council have received nearly the 2,000*l.* calculated on as necessary to cover the ground and to carry out the stipulations of the lease, which provides for that sum being laid out. 3,000*l.* were at first demanded, but through friendly intervention that sum was reduced to 2,000*l.*, and the rent diminished to 80*l.*

The lowest tender, by Mr. Roberts, of Islington, is 2,970*l.*, and to bring it to this sum he took 10 per cent. off the total. It is of the utmost importance that the Council should start free of any debt. Most of the members of this body have voluntarily promised 10*l.* each. At the same time, however, the Council of the Museum feels that for an object of such general interest it has a right to appeal to the public at large. The subscribers to the Architectural Museum have done well, but funds are still wanting for the completion of the work, and the Council has no scruple in inviting them from all friends of architectural progress, without affixing any amount.

The profession have scarcely come forward as they might have done, though they have had more than one opportunity; but, judging from the inquiries that have been made about space to let in the new home, both Architectural Societies, and art-workmen, too, are alive to the privileges of being near such a collection as this well housed. Seeing how much the friends of the art have done, the Council may surely look to those for whose advantage the museum is intended for the further sum required.

THE WROXETER EXCAVATIONS.

THE money subscribed being again nearly expended, the work has been brought to a close. Some of the walls lie so deep under a mass of earth, that, to uncover one square foot, it became necessary to dig out and convey away several square yards; the labour and cost were therefore very considerable. But they have succeeded to a great extent in laying open the arrangement of walls between the basilica and the adjoining buildings. A doorway has been discovered leading into the latrina, and the step, which is very well formed, is distinctly worn by feet. No exit has been traced from the drain; but a singular conformation exists underneath the outer wall of the basilica. This wall is the subterraneous continuation of the great wall which has for ages marked the site of Wroxeter above ground. Under this wall, where the excavations have been going on, they have discovered a wide open space, or large drain, which is to the rabbits an underground means of communication between one part of their dwellings and another. It is considered likely that this was a *cloaca maxima*, into which the drain already mentioned, and that long since discovered in the hypocaust near the great wall, emptied themselves. The enameller's shop, or forge, or smelting house, and that adjoining, opened upon the great street (Watling-street), where we know there were handsome public buildings on both sides, and a considerable space of ground (perhaps the Forum) between them.

SITE FOR MANCHESTER NEW TOWN HALL.

A MEMORIAL on this question was presented at the meeting of the City Council on the 9th inst. from the Manchester Architectural Association. The memorialists say:—

"We, as architects, have never entertained a favourable opinion of the shape of the site as decided upon; but, after a careful examination of the competition plans, we are more than ever convinced of the unfitness of the site for the purpose of a Town Hall for this city; and our object in addressing you is to entreat you to reconsider your decision while there is yet time; in doing which we feel that we are only echoing the opinion of the majority of our professional brethren who supplied sketches in the recent competition; and we know of instances where men of talent and high reputation in the profession have thrown up the competition on account of the inappropriate nature of the site as regards its form. With its position no fault can be found, and in many respects it is admirably adapted for a fine architectural display. But we respectfully ask that the boundary line of the plot may be altered so as to form right angles, and thereby render the site more available for the production of a good and convenient plan."

From the general feeling which seems to prevail amongst the well-informed portion of the Manchester community, we may suppose it likely that the Council will reconsider their determination as to the shape of the site for the new structure, which a glance at the plan shows to be inconvenient and undesirable. The Corporation should use this opportunity of improving the street communication of the neighbourhood, and it would be well to adopt plans which would meet the probable requirements of the city for many years to come.

A correspondent writes, and with some force, matters having now so far progressed,—"Attempts are being made to induce the Corporation to alter the shape of the site, so as to make it rectangular; and the Architectural Association here has, *inter alia*, memorialised the Corporation on the subject. The Manchester Society of Architects has not yet moved in the matter, because, although I think they are pretty unanimous as to a rectangular shape being preferable to the triangular, yet they think it would be excessively unfair to the architects

now engaged in the second competition if their labour and the expense they have already incurred were thrown away. The mere 300*l.* each would by no means compensate for their loss and the loss of employment of their respective office staff. No; let this competition be decided on its present basis, the architect chosen, and then let the Council improve the site if they can. The architect who can design the best arrangement on the triangular site can surely do equally well on a rectangular one."

CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS.

The annual convention of the American Institute of Architects was held on the 22nd ult. Mr. Richard Upjohn, the president, made an address, in which he spoke of the interchange of courtesies which had recently taken place between the Institute and the Royal Institute of British Architects. Mr. Upjohn, as president of the American society, has been elected an honorary member of the Institute. The speaker referred to the evils of competition among architects, under the present system of proposals for plans. It was wrong, he said, for architects to submit their work without compensation, for the examination and rejection of a committee of business men, not one of whom probably knew as much of the subject on which he was to decide as any of the competitors. The proper way would be to appoint five commissioners of good repute, and three non-competing architects. The competitors should not exceed ten, nor be less than five, and should be properly remunerated. The plans submitted should be examined by the architects, and the best reported to the commissioners. The reports of several committees were read. The Committee on Education recommended the formation of a Polytechnic School by the Institute, under the management of a Board of Control. The following officers were elected for the year 1868: — President, Mr. Richard Upjohn; Treasurer, Mr. R. G. Hatfield; Secretary, Mr. Fred. C. Withers; Corresponding Secretary, Mr. W. R. Ware; Librarian, Mr. A. J. Bloor.

BRISTOL.

The Royal Infirmary. — This edifice has for some time been in the hands of the builders. The roof has been raised, and the height of the upper story rooms will now be 12 ft. There will be large dormitories for the use of the regular nurses, about forty in number, each of whom will have a separate sleeping-room. Large windows in the front, and a corridor between the dormitories and windows, secure ventilation. There are other improvements and conveniences. The cost of this portion of the work is 3,200*l.* The contractor is Mr. W. Baker; and the architects are Messrs. Popes & Bindon. In the rear of the building are being erected, on the pavilion plan, two new wards; the cost of which has been defrayed by Mr. T. W. Hill, of Clifton, who has given a donation of 3,000*l.* The new infirmary wards are now nearly ready for the roof. Each ward is 50 ft. by 25 ft., and 15 ft. high, and is designed to take twelve beds. The wards are cheerful and well ventilated, their floors will be of polished oak; the windows will be glazed with British plate-glass, and the walls and ceilings cemented. The two wards are built one above the other. The extra cost of other improvements, will be borne by the Infirmary Committee. There has been no attempt on the part of the architects to make an ornamental building, but rather to make it look like a portion of the old building. The firm by which the Hill wards were designed, is that of Messrs. E. Godwin & Crisp. The general contractor was Mr. E. J. Hatherly, the masons' work being done by Mr. J. P. Stephens. Mr. Tuckey did the plumbers' work, and Mr. Cowlin the plastering and glazing.

The New Lunatic Wards at Clifton Union.— These wards have just been completed by the addition of two wings, one for male and the other for female patients. They are built in keeping with the general plan of the workhouse. On the ground floor of each is a day-room, 70 ft. by 20 ft., and a spare room, 21½ ft. by 20 ft. Adjoining are a lavatory and water-closets. The first floor is approached by a stone staircase. On this floor is a dormitory, 100 ft. by 21 ft., water-closets, and bath-room. The building has cost about 1,800*l.*

The New St. Philip's Police Station.—This building, which adjoins the Hannah More Schools, is a plainly-designed structure, 94 ft. in length. On the ground-floor are a charge-room, an inspector's-room, an inspector's retiring-room, a sergeants'-room, and a large mess-room, 24 ft. long by 17 ft. wide, with a room adjoining, and a kitchen, 20 ft. by 15 ft., and a scullery, 16 ft. by 10 ft. A corridor affords communication between the charge-room and the cells, which are eight in number. The place is warmed by Hayden's heating apparatus. Adjoining the station-house proper is a building in which the fire-escape is to be kept. On the first floor are four large dormitories for the men, calculated to contain eighteen beds. A lavatory and bath-room are attached. The premises have been built, at a cost of 2,700*l.*, by Mr. J. Webley, from designs prepared by Messrs. Popes & Bindon, architects.

St. Augustine's Church, Montpelier.— A place of worship which is to bear this name, says our authority for these details, the local *Times*, has been erected by Brother Cyprian, on land adjoining the Home at Montpelier. The edifice, which consists of nave, chancel, and aisles, is designed to seat 500 persons. The exterior is of galvanized iron, and the inner walls and roof are of stained deal. Fifteen two-light Gothic windows in the front and sides furnish light. The nave and chancel are divided by a rood-screen. An organ of the value of 800*l.* will be placed in a chamber behind the communion. The main entrance in Richmond-road is surmounted by a bell-turret, with cross over. Below the chapel is a school-room for 300 children. The interior arrangements have been designed by Mr. Dundas, assisted by Mr. E. Grigg. The builders were Messrs. Tupper & Co., of London. The masons' work has been done by Mr. M. Kingstone, and the carpenters' work by Mr. Grigg. The gas-fittings have been supplied by Mr. Foley, and the paintings and decorations generally are by Mr. Ridley. The edifice will be heated by steam. The church is to be opened on the 6th instant.

New Chapel for the Penitentiary. — A new chapel has been erected on the premises of the Bristol Female Penitentiary, Maudlin-street. The cost, about 2,200*l.*, has been defrayed by subscriptions. The gallery has been entirely reserved for the inmates of the Penitentiary, who will be enabled to enter the chapel and take their seats unobserved. The public will be admitted downstairs. The edifice is intended as a mission chapel. The chapel and building have been set back, and give a clear space in front of 50 ft. The style of the chapel is Gothic of the early part of the fourteenth century. The architects are Messrs. Popes & Bindon. The chapel will be opened in the course of a week or two.

The new Ritualistic Chapel erected by Mr. C. A. W. Dundas, better known as Brother Cyprian, has been opened. The building is situated in Richmond-road, Montpelier, and has cost about 2,000*l.*, the whole of which has been defrayed by Mr. Dundas. It is called a collegiate chapel, from its connexion with St. Augustine's College, an institution which also owes its existence solely to Brother Cyprian, and which was established by him in July, 1861, for orphan and other poor boys, whom he feeds, clothes, and educates. In addition to this he gives them a trade, that of printing. The chapel will accommodate about 500 persons, and connected with it are schools intended entirely for the secular education of the poor children of the district.

PROVINCIAL NEWS.

Smethwick. — The new Public Hall, at Smethwick, is at length completed, and inaugurated by a grand concert, for the benefit of the Smethwick Library and Reading-room. The new building comprises the hall, a large room, with seats for 1,000 persons, and the rooms for the local board of health; the whole being, in fact, a town-hall, with its attendant offices. The hall is about 75 ft. long by 50 ft. broad, and is approached by an entrance in the central block of buildings, and two side entrances. It has galleries on three sides, the fourth being occupied by the orchestra. The style of the interior may be considered as a free rendering of the Venetian-Italian, adapted to modern requirements. The ceiling is elliptical, and is enriched with moulded ribs and ornamental intersections; the window architraves are groined into the ceiling. The galleries have panelled fronts supported by cast-iron columns, painted in two colours, and the capitals gilt. The orchestra is similar in character, but the front portion is brought forward upon carved brackets, that heighten the effect. The whole of the woodwork is stained and varnished. The hall is lighted by star pendants from the ceiling, and warmed by Melling's apparatus. The remaining buildings consist of the Board-room, and rooms for the clerks, surveyors, and others connected with the local Board of Health. Externally the elevation to the road is a combination of brick and stone, of two stories. The principal entrance in the centre consists of an arched portico of four columns, with enriched capitals. On either side are two windows, with pilasters, with carved capitals supporting moulded arches worked with a combination of moulded brick and stone. The upper story and return side has corresponding windows, and the whole is surmounted by a mullioned cornice, with pediment in the centre. Arrangements have been made for the erection of a clock-tower above the north entrance, but this has been deferred for the present. The cost of the whole will be nearly 4,000*l.*

Grantham.—The foundation-stone of the new Town-hall has been laid by the mayor. The site for the new edifice is "The Firs," on St. Peter's-hill. The design was by Mr. Watkins, of Lincoln.

FROM SCOTLAND.

Edinburgh.—A preliminary meeting for the consideration of resolutions to be moved at a public meeting on the 19th current, on the subject of the establishment of a Free Public Library for Edinburgh, has been held, and appropriate resolutions agreed upon in favour of the object in view. The united council of trades delegates of Edinburgh and Leith have also had a meeting promotive of the same purpose, and a committee's report on the subject was read and approved of.

Glasgow.—A new dock, which has taken three years in its construction, has been opened at Glasgow. Its cost will be about 115,000*l.*

THE VENTILATION OF SEWERS.

Having for many years devoted much time to investigations respecting the cause and distribution of disease, I have long since come to the conclusion that, with the exception of bad water, more disease is engendered by sewage-gases from *in-door* water-closets and waste-water drains (where such are in use), than from all other preventible causes together.

In reference to sewage-gases and the ventilation of sewers, the Registrar-general states, that "this is one of the serious complications of water-closet drains, as under that system every house is put into communication with every other house, so that the zymotic volatile stuff of disease has a chance to find its way from house to house through this artificial channel." Yet, great as the evils of that system are, as remarked in the *Lancet*, "where there are already expensively-constructed systems of sewerage, there is little probability of their being superseded, at least in our day." These quotations show the urgent necessity for some improvement in the ventilation of sewers, and any proposition for that purpose must be worthy of consideration; I therefore submit the following, hoping that its adoption might be found beneficial, although I believe that no means for ventilation will ever render the water-closet system free from risk to health. The plan I propose has been submitted to the consideration of some who are well qualified to judge on such subjects, and they recommend a trial of it; but, as I am no engineer, I leave the decision as to the utility of the plan to those whom it may most concern.

The above quotation from the Registrar-general's report seems sufficient to prove that all means now in use are inadequate for the ventilation of sewers; still I know that many hold the opinion that open shafts, of the height of or higher than the neighbouring houses, would be sufficient for the purpose. In a pamphlet "On the Ventilation of Public Sewers," 1864 (now out of print), I suggested that a ventilating pipe should be inserted into all water-closet pipes, &c., *below the trap*, so as to allow the gas to escape into the open air above the house-top or where convenient; but I contended, and still hold, that no system of ventilation, merely by high shafts or pipes, can render houses connected with the sewers free from risk of contamination from sewage gases. Gas can only escape from the sewers by the expansive force of the gas generated within them, and to do so in volume the expansive force must overcome the pressure of the atmosphere; I therefore hold that a gas pressure sufficient to force an escape at the height of 30 ft. or 40 ft., or higher, as the case might be, would be sufficient to force an entry into any house with defective water-closets, pipes, or waste-water drains connected with the sewers; and to such defects, from bad materials, failure of workmanship, or the effects of frost, every house connected with the sewers is liable. Even without such defects there would still be risk of contamination, as during severe frosts, when, from the exclusion of external air, and from respiration and combustion, the air within doors is more than usually vitiated—every house, from its greater heat, would act as an air-pump to suck in gas from the sewer.

The great point to be gained in the ventilation of sewers is to withdraw the gases directly from them, and thus keep the expansive force of the gases in the sewers less than that of the atmospheric pressure without; so that there should be a constant pressure into the sewers in case of such defects as I have alluded to, rather than an expansive escape of gas from the sewer wherever possible. This I propose to do by air-pumps connected with the sewers and worked by steam-power; so that the gases thus withdrawn from the sewer might be forced into a discharging-shaft carried *to any necessary height or distance*, so as not to be a nuisance to the neighbourhood.

That pumping power sufficient to produce such effects could be applied cannot be doubted; the chief question therefore is, as to the expense of working such a plan. On this head I am informed that, in many of the condensed-air blast-furnaces in Staffordshire, upwards of 80 cubic feet of air, at atmospheric pressure, are discharged from a single cylinder at every stroke, and these at upwards of thirty per minute. On this calculation we have a discharge of gas from the sewers of 144,000 cubic feet per hour, or 3,456,000 per day; a quantity equal to the contents of a cylinder of one yard in diameter and more than ninety miles in length. What the working cost to produce similar effects on the plan I propose might be I cannot guess; but, as the gases to be pumped out would hardly give any resistance, it may be calculated that all the force would be expended in merely working the engine itself, and therefore no very great steam-power could be required.

For ventilating purposes the pumping apparatus need not be directly in contact with the sewer, but might be at any convenient distance if connected with it by an air-tight pipe; or the pumping-chamber might be in such connexion with the sewers at various parts, so that the gases could be pumped at the same time from the sewers over a large area, or from either or any of the connecting pipes as required.

Of late much has been said of a risk from choke-damp in the underground railways of the metropolis; and, from respiration by so many persons, together with the constant combustion of so much gas and coke, carbonic acid gas must be generated there in large quantities, and may become injurious; but I believe that ventilation in this case also could be effected by the plan I propose; as separate pipes from a pumping-station could communicate with various parts of the tunnel, even to a very considerable distance; and by these, if laid along the bottom, the heavy gas (carbonic acid) could be withdrawn, while the gases of a lighter character could be drawn off by similar pipes opening into the upper part of the tunnels.

Although on the proposed plan steam power would be necessary for ventilating extensive systems of sewers, or the like, other mechanical means, or horse or manual labour, could be applied as the motive power in carrying out the principle on a smaller scale, or where only occasionally required. By pipes, of the necessary size, distributed over a building on a plan similar to those for gas, every part, when required, could be brought into communication with the pumping chamber, and the appliances for ventilation could thus be as readily at hand as gas for lighting purposes, and under similar control, as the communication or communications with each room could be more or less closed at will, and when needed the whole pumping power could be made to act entirely on any department. The principle therefore seems very generally applicable, and assembly rooms, courts of justice, hospitals, or even private dwellings might be ventilated in accordance with it. For the ventilation of crowded or over-heated manufactories or workshops it is fairly applicable; and, where steam power is in use, the additional working cost for carrying on the ventilation would be very little. The principle could also be applied in chemical and other manufactories for drawing of deleterious fumes or gases, also for the ventilation of vaults or stores where it might be difficult or dangerous to use fire for such purposes, and it might be usefully applied for cooling or drying purposes in many trades and manufactories.

An important advantage under the proposed system is, that the gases or whatever might be withdrawn in the process of ventilation would be under control. Thus with ordinary ventilation the discharge might be at once into the air, but in the ventilation of hospitals the exhalations withdrawn from wards, for fever or other contagious diseases, could be diverted through heated pipes, or some substance, which would render them innocuous. In like manner noxious fumes, from chemical and other manufactories, might be brought into contact with absorbing or decomposing matter, so as to prevent injurious effects from them, or, at least, some mitigation of such evils.

With respect to sewage gases, the most ready way to deal with them would be to pass them through fire; but, from a more than ordinary formation of hydrogenous gases, or an escape of carburetted hydrogen from the gas mains, there would be risk of explosion, and, as already stated, sewage gases could be driven off to the least objectionable spot, even if at a considerable distance. However, the experiment might be tried as to how far sewage gases might be disposed of by underground ventilating pipes; for, as vegetation deodorizes sewage matter, and has its growth promoted by it, it is possible that even sewage gases might be turned to economical purposes.

G. A. Rowell.

THE STRENGTH OF CONCRETE WALLS.

Determined to see for myself what had been accomplished with concrete, I visited the concrete houses at Gravesend; and, fortunately for my conviction, I arrived at the time of the examination by the committee of the Metropolitan Board. I saw a 9-in. concrete wall battered with a 14 lb. sledge hammer. Mr. Vulliamy, the architect of the Board, said that with about three such blows a hole would have been made through a 14-in. brick wall. I cannot say what number of blows were inflicted, but certainly the wall was struck vigorously, the only perceptible effect being a slight crushing of the stones on the surface of the concrete on the side hammered. Mr. Vulliamy tested the wall on the other side with a straight edge, and declared that not the slightest effect was produced.

Robert Whiteley, Builder.

RYDE CHURCH COMPETITION.

Sir,—I inclose an extract from the *Isle of Wight Times*, regarding the competition for the proposed parish church at Ryde, and urging the desirability of selecting a local man's design. Upwards of sixty designs have been sent in, in accordance with the advertisement published in your journal, on the faith of the competition being a *bonâ fide* one. Comment would be superfluous.

One of the London Competitors.

P.S.—After the appearance of such an article in a local paper, the only way to satisfy the public of the good faith of the advertisers, is for the committee to appoint some architect of eminence, unconnected with the competition or with the locality, to make the selection.

CONSPIRACY TO DEFRAUD ARCHITECTS.

At the Manchester city police-court, James Macmaster, master builder, and Adam Hanning and James Slater, foremen in his employ, were recently charged with conspiring together to defraud Messrs. Pennington & Bridgen, architects, Manchester.

The evidence given for the prosecution was in substance as follows:—The prosecutors had been largely employed in the erection of villa residences in and around Manchester, and they had contracted with Mr. Macmaster to build them eight houses in Clifden-avenue, Fallowfield. A dispute arose between them as to the amount they were to pay Macmaster, and on Saturday, the 9th of February last, he came to their office about this dispute. When Macmaster left their office, he said he would find some way to make them pay the account without going to law. On the Tuesday, the 12th of the same month, the two defendants came to their office, and represented themselves to be a deputation from the Operative Joiners' Association, and that they had been sent to wait upon their firm in consequence of a complaint which Macmaster had made at a meeting of the society on the Friday previous. They had got two surveyors to measure the work for which they had contracted with Mr. Macmaster to build, and on the two defendants coming to them they showed them their own and Macmaster's account, which did not agree together. The cheque was given on the understanding that, although it was written for Clifton-avenue, it was in payment of all Mr. Macmaster's demands. The defendants said that Macmaster was bound to agree to the settlement, as "He dared not make fools of them, because if he did all his men would be drawn out of their jobs." The men came again, and obtained 1*l.* for their expenses.

David Foulkes, a joiner, and treasurer of the Manchester Lodge of the Operative Carpenters' and Joiners' Society, held at the Cheshire Cheese, in Bridge-street, Manchester, stated that until lately the prisoner Slater had been secretary of the lodge. Mr. Macmaster never brought the matter of his dispute with Messrs. Pennington & Bridgen before the lodge, and no deputation was ever appointed to wait upon them.

Sergeant Spibey, of the city police force, deposed that on Saturday, the 19th October, he went to Macmaster's house in Mercer-street, Hulme, and there saw Macmaster. He told Macmaster that he had come to make inquiries respecting two men who had been to Messrs. Pennington & Bridgen, and had received on his behalf a cheque for 100*l.*, stating that they were a deputation from the Joiners' Association. Macmaster replied, "No; it is not so. They were no deputation from the Joiners' Society; they were two men of mine. Pennington & Bridgen owed me 150*l.* and odd; I owed my men's wages, and I told them they might go and settle the matter for 100*l.*, and I would pay them if they got the money."

Mr. Addison, on behalf of the prisoners, said he believed there was a good defence to the charge. He submitted that with regard to Macmaster, even assuming that the other prisoners did falsely represent themselves as a deputation from the Joiners' Association, there was nothing to show that he was any party to that misrepresentation; or that his statement to the police officer was not strictly correct.

The prisoners were committed for trial at the Assizes, but were admitted to bail.

THE TRADES MOVEMENT.

General Builders' Association.—The annual meeting of the Birmingham branch of the General Builders' Association has been held. Mr. William Webb, the president of the branch, occupied the chair. The committee reported that the progress of the Association had been eminently satisfactory. This was mainly due to the accession of members consequent upon the amalgamation, in the spring of the year, of the late Master Painters' Association with themselves. They had now 112 members, as compared with sixty-three at the time of the presentation of the last report. For some time past the committee had been impressed with the necessity for some amelioration of the present system of contracts, agreements, and bills of quantities, and an effort had been directed towards the attainment of that object. At the end of last year a letter on the subject of the appointment of quantity surveyors and forms of contract, and bearing the signatures of sixty-one of the principal employers of labour, was sent to the honorary secretary of the Birmingham Architectural Association. A promise was given that the matter should be considered at the adjourned annual meeting of the Association to be held on the 21st of the present month. Until a settlement should be obtained, the committee recommended that a strike clause and provisions for arbitration in cases of dispute during the execution of a contract should be insisted upon. They would also advocate the incorporation of bills of quantities in the agreement, and the adoption of a system of monthly payments on account. A scheme for the registration of non-union workmen had been originated. The committee regarded the proposed scheme as one of the utmost importance to the trade. The report was unanimously adopted. Mr. W. Briggs, jun., was elected president, and Mr. Cresswell vice-president of the branch for the ensuing year. Mr. Hardwick was re-appointed treasurer. A committee of twenty was elected.——The annual dinner of the Association took place on the day of meeting. Mr. George Dixon, M.P., presided, and there were about 170 gentlemen present, including the principal employers in the building trade of Birmingham and the neighbourhood.

Arbitration in the File Trade.—A monthly delegate meeting of file-smiths held at Sheffield has been considering the advisability of establishing a board of arbitration and conciliation in connexion with the file trade. The meeting adopted the following resolution:—

"That this meeting recommend the delegates present to consult with their several employers, and ascertain whether they are willing to co-operate in the formation of a board of arbitration and conciliation to settle any disputes that may from time to time arise in the trade respecting prices or other matters as between employers and employed, and to report the result of their interviews at the next delegate meeting."

Progressive Society of Carpenters and Joiners.—The annual dinner and entertainment of this society took place at Charlotte-street, Bedford-row. About fifty of the members of the society were present. Mr. George Potter presided. After dinner, Mr. Potter gave, among other toasts, "Success to the Progressive Society of Carpenters and Joiners," and took advantage of the opportunity to refer to the trades' union questions which have of late become a topic of much discussion throughout the country. He remembered, he said, that when he first came to London the joiners worked for 5s. a day, and had to work on the Saturday till half-past five o'clock in the evening. If he did not mistake, they now received 38s. a week, and left off work on Saturday at one o'clock. In addition to that they now possessed the great privilege of having their affairs published, so that the public might be able to judge as to whether what they asked was reasonable or not. The trades' unions were no doubt established in the interest of the working people, but they were perfectly legal, and had been, in his opinion, mainly instrumental in imparting to the working man that education which Government had up to the present failed to afford, and which had been the means of sustaining the character of England as a manufacturing country.

CHURCH-BUILDING NEWS.

Kennington.—The foundation-stone has been laid of a new school-church, which is to be erected in the Foxley-road, and which is designed to afford accommodation for some of the inhabitants of the thickly-populated district of St. Mark's. The design embraces a church and a superior middle-class school, which, for the present, are to be worked together.

Pickering.—Rillington Church spire has had a considerable portion of its top displaced twice during the last thirty years, on the former occasion by the great January gale, and on the latter by being struck by lightning during the present summer. The restorations on both occasions have been effected by contributions of the landed proprietors and others. Mr. John Bisby, of Leeds, has executed the work; and it is hoped that the application of a new lightning conductor will prevent the recurrence of a similar accident.

Arnsby.—The old church at this village has been restored and re-opened for public worship. The Norman arches were covered over and white-washed, but now they have been cleared of that and restored. A gallery has been removed from the west end, and the tower arch, which was blocked up, has thereby been re-opened. The south aisle has been rebuilt, and a new roof put on it. The walls have all been replastered. The chancel had a flat roof on very high walls; these walls have been lowered, and a high-pitched roof put up instead, with open timber. The seats in the church are of deal, and varnished; the floor of small red quarries with coloured bands. There are three memorial windows of stained glass—one at the east or tower end, given by Mr. Perkins; a small one on the south side, given by the architect; the third window is given by the vicar, and is placed in the south side of the chancel. There is a new high-pitched roof put on the nave and aisles. Mr. John Loveday,

of Kibworth, was the contractor; and Mr. Millican, of Leicester, the architect employed.

Manchester. — The foundation-stone of the Stowell Memorial Church, situated at the junction of Cross-lane and Regent-road, Salford, has been laid by the Bishop of Manchester. It is estimated to cost about 7,000*l.* Mr. Mark Foggett is the builder; and Mr. J. Medland Taylor, Manchester, is the architect. The eastern end of the church is towards Cross-lane; and the tower and spire are at the east end of the north aisle, so as to show to advantage from every approach. The arrangement of the church on the ground plan comprises a spacious nave, with five arches on either side, marking it off from its north and south aisles. The chancel fittings will be of oak. The roofs will be covered with purple slates.

Salford (*Bedfordshire*).—The church of this rural parish having become dilapidated, as well as disfigured, has been under restoration in the hands of Mr. W. White. The tower has been removed and replaced by an open bell-cote, surmounting the western gable, and capped with a short spire, covered with oak shingles. The east wall of the chancel has been rebuilt, and also the arch opening from the nave. The roof has been reconstructed and covered with old tiles, relieved by bands of new. The chancel fittings are new. The nave roof has been reconstructed, and the western gallery removed. Whitewash has been cleaned off, and stonework renewed. Mr. A. Kimberley, of Banbury, executed the work done.

Hardwycke.—The parish church of Hardwycke, a secluded village, about four miles west of Wellingborough, has been re-opened for divine service after having been restored. The church was in such a dilapidated condition that it was almost ruinous. It was placed in the hands of Mr. W. Slater and Mr. R. H. Carpenter, of London, architects, and the work of restoration was at once proceeded with. The arches separating the south aisle from the nave were blocked up, and the aisle itself was in a ruinous state. The arches were thrown open, and the aisle was rebuilt on the old foundations. The porch on the north side is new, and the whole church, including the chancel, has been new-roofed. Originally the chancel was larger than it is now, but in the recent restoration it has been thought desirable to extend it. The old mouldings have been followed, and an old beam has been left at the west end of the nave. The windows are new, the east window being of the Early Decorated style, to which the original church belonged. The chancel is laid with Minton's encaustic tiles, the gift of Mr. Minton. There is a lantern-window at the west end, which now contains a picture of St. Leonard, to whose memory the church is dedicated. That was put in by Mr. Hall, of Northampton, by whom all the plumber's and glazier's work has been done. The contractors were Messrs. Clark & Heap, of Northampton, builders.

Nottingham.—St. Mary's Church, which has been restored at the cost of many thousand pounds, by Mr. Gilbert Scott, has been reopened for divine service. The following statement has been published by the committee. General works done:—Roofs, restored, 2,439*l.*; internal walls, recased, 1,010*l.*; floors, new, 790*l.*; gas-fittings, new, 475*l.*; windows, reglazed, 250*l.*; window-tracery in transepts, restored, 175*l.*; warming apparatus, new, 200*l.*; chairs, 150*l.*; organ, removed and repaired, 120*l.* Subscriptions to meet these items, 5,000*l.* General works to be done:—Oak seats, vestry roof and walls, buttresses, parapets, and the whole of north exterior, organ-chamber and organ, wall and fence of churchyard, porch. Special gifts suggested:—Pulpit, reading-desk, chancel-stalls at 40*l.* each, stained windows. The gasfittings generally are supplied by Skidmore, of Coventry, and the heating is accomplished by four of Gurney's stoves, supplied by the London Heating and Ventilating Company, the old arrangement for hot air having become useless. The whole of the works have been carried on under the direction of Mr. Scott and the immediate superintendence of Mr. W. Cook. The contractor for the whole of the works is Mr. J. E. Hall, of this town.

Lee (*Bucks*).—The chief stone of a new church has been laid in this village. The plan consists of a nave 46 ft. long by 21½ ft. wide, and a chancel 21 ft. long by 16 ft. wide, an ample vestry, and south porch. The roof of the nave will be open timbered; that of the chancel boarded. The walls will be of brick and flint, with stone dressings and gable crosses. A bell-turret surmounts the western gable. The church has lancet windows and buttresses throughout. The east window is a triplet. The contract for the first portion of the work amounts to 1,065*l.* The seats are open, and accommodation will be immediately provided for 182 persons. The builder is Mr. James Honour, of Tring, and the architect, Mr. Augustus Frere.

Maldon.—All Saints' Church has been re-opened. By removing the old pews, and erecting in their places the usual benches, additional accommodation is provided, the number of new seats thus obtained being 162; so that the church will now seat 1,000 persons. That is the chief alteration. The seats are free. The old pulpit has been replaced by a stone erection, octagonal in shape. A reredos, in Caen stone, has been erected, and the interstices have been filled by paintings from the studio of a local artist, Mr. Nightingale, the subjects being the chief sacrificial features in the life of Jesus Christ. The flooring of the church, which was of different levels, has been made into one, partly re-flagged with new materials, and the floor of the altar-steps laid with encaustic tiles. The alterations have been effected from the designs and under the superintendence of Mr. Wm. Adams, architect, of Maldon, and of Newport, Monmouthshire, by Mr. E. Saunders, contractor. The cost of the new works will be about 1,200*l.*

Battle.—The parish church of St. Mary, Battle, is in bad condition. It dates from the twelfth century, and the stonework of the exterior is much worn and decayed by time; while the interior is not only defaced by injudicious alterations, but the area is wasted and encumbered by pews, which are as inconvenient in form as unsightly in appearance. Efforts are now making to restore and reseat the church under the direction of Mr. Butterfield. The cost of the work will be about 4,000*l.*

Cottenham.—For some time past the interior of the parish church has been in course of gradual restoration. The whole has been completed, with the exception of some of the more elaborate wood-carving, by village tradesmen and workpeople, under the superintendence of Mr. W. M. Fawcett, architect. The plastering of the walls, the stonework, flooring, roof, and woodwork, have all been restored. In the place of square pews, the church now has open-bench seats in oak.

Twywell.—The parish church of Twywell, a village about four miles from Thrapston, in Northamptonshire, has been re-opened for divine service, after having undergone a restoration. The tower was not safe, and had to be supported, and the whole edifice required almost to be reconstructed. The west end gallery has been taken down, and the arch opened. A new bay has been added at the west end to the south aisle. New windows and mullions have been put in. The whole interior of the church was plastered and whitewashed. This has been removed. The roof, even, was whitewashed: this has been cleaned off, and the rafters stained. The south porch has been partly rebuilt, and the chancel has been rebuilt, the north wall and the east end being entirely new. The old pavement remains. The old high pews have been removed, and open seats substituted for them. There is a new oak pulpit, carved, with a reading-desk also of oak. The carving on the pulpit was taken from an old low screen which was hidden from sight, and blocked up the high pews. The chancel has a pitched roof, which, like the flat roof in the nave, was whitewashed. The church is heated with Marriott, of St. Neot's, hot-water apparatus. The work has been done by Mr. S. R. Brown, of Kettering, builder, under the superintendence of the Rev. Mr. Else, who has been his own architect and clerk of the works. At a luncheon after the opening, the bishop of the diocese, in course of some remarks as to the church, said there was a peculiarity in the work, which he would not commend to their imitation. The church had been almost re-built without either architect or clerk of the works. Now, there were some very excellent clergymen—men of great attainments in various ways, but he must confess that if a clergyman came to him and told him that he was about to restore his church, without having either an architect or a clerk of the works, he should hesitate before he gave him a faculty. He admitted, however, that in the present instance he could not find fault.

Sheldon.—The church here, which for more than a year has been undergoing a restoration, has been reopened for Divine service by the Bishop of Worcester. Whilst being dismantled many curious old relics were brought to light. The walls were found to be covered with paintings, and in some places superposed one upon another. Being rudely done in distemper it was impossible to retain them. The remains of a rood-loft and staircase were also discovered, and one or two piscinas became revealed to view as the old plaster was removed. Above the rood-loft was found a large cavity in the main wall 20 in. by 30 in., which was evidently used as a hiding-place for relics and church jewels and plate. There is an old inscription in the tower, now framed, with plate-glass front, recording the fact that the church was built in A.D. 1461. The roof, hid behind the plaster ceiling, was in good preservation, and remains now in the new church exactly as it was in the old. Twelve stained-glass windows, by Messrs. Ward & Hughes, have been inserted, and the cost of one of them has been entirely defrayed by cottagers, having the appropriate subjects of the widow's mite and the Mary "who hath done what she could" represented in the two lights. The architects were Messrs. Slater & Carpenter, of London; and the builder, Mr. Bromwich, of Rugby. A new organ is now wanted.

DISSENTING CHURCH-BUILDING NEWS.

Finsbury, London.—The Congregational chapel in Finsbury Circus has just been reopened, after having been decorated throughout. A considerable alteration has also been made in the internal arrangement of the chapel on the north side, the accommodation on the ground-floor having been somewhat curtailed to allow of the erection of a large lecture-room, with minister's and deacons' vestries. A deep gallery, which forms the ceiling of these rooms, furnishes a space for a large new organ, built by Messrs. Bishop & Starr, and contains, besides, two rows of pewing. A new heating apparatus has been provided, and a fresh system of gas-fitting adopted, consisting of starlights from the ceiling, and brackets under the galleries. Mr. W. A. Dixon was the architect employed; and the works have been carried out by Messrs. Staines & Son, of Great St. Helen's.

Hoxton, London.—The new Barbican Congregational Church has been erected in the New North-road, Hoxton, in lieu of the old one of the same name which stood for upwards of eighty years in Barbican, but which has been purchased by the Metropolitan Railway Company. It was opened on September 26th. It is of the Early Decorated type. On the basement, which is more than half out of the ground, there is a lecture-room, 64 ft. by 41 ft. 6 in., and 12 ft. high, with platform and two good entrances; two infants' class-rooms, with galleries for 100 infants; and two class-rooms, for forty senior scholars; all possessing excellent light. On the ground-floor is the church, 102 ft. by 41 ft. 6 in. and 38 ft. 6 in. high, having accommodation for 900 persons. In the front are two entrances, with corridor 25 ft. 6 in. by 6 ft., paved with ornamental tiles; and in the rear are ministers' and deacons' vestries, a lavatory, &c., with staircase to the organ gallery. The church is well lighted. There are no columns above the galleries, the roof spanning from wall to wall. The front is of Kentish rag and Bath stone, with appropriate carving. The cost of the whole, including lighting, warming, ventilation, cushions to pews, architects' fees, &c., will be under 6,000*l.* The architects are Messrs. Lander & Bedells, and the work has been done by Messrs. Browne & Robinson.

Chequers-alley, London.—The space between City-road and Aldersgate-street,—especially that portion of it in the rear of Bunhill Fields,—is occupied by a dense network of narrow streets and alleys. The houses composing these thoroughfares are of the worst imaginable style of construction, and are many of them in the last stage of dilapidation. They are inhabited by a most poor and squalid class, to whom dirt appears to be a necessity of existence, or to whom, at any rate, cleanliness seems to be impossible. In the midst of this mass of wretchedness,—and it is to be feared of crime also,—a Wesleyan Chapel and schools have just been opened. Chequers-alley,—one of the narrowest and darkest courts in London,—affords a site for these buildings. Both this thoroughfare and Pump-alley, which intersects it at this point, are so narrow, that when a passenger in either of them extends his hands, he can touch at once the walls on each side. In such a situation architectural display would have been out of place, even if the limited

funds at command had allowed it. The structure, therefore, is of the plainest description, although commodious. The chapel will seat 200 persons, and is entered through a short corridor, designed to exclude the noise of any disturbance outside. For the same reason, and to avoid the risk of damage, the window-sills are kept up as high as possible. An infant school is attached to the chapel. The remainder of the premises consist of a school-room of the same size as the chapel, with class-rooms, lavatories, &c., attached, and a house for the porter who takes charge of the whole. Bath stone and stock brick are the materials employed. Care and attention have been given to the lighting and ventilation of all apartments. Mr. E. Hoole, of Craven-street, was the architect. The whole cost of the premises has been about 1,500*l*. The foundation stone was laid by the Earl of Shaftesbury. The chapel and schools have recently been opened. Mr. Hobson, of the Adelphi, was the builder.

Sunderland.—The foundation-stone of a new chapel has been laid in South Durham-street, Sunderland. About thirty years ago a large tabernacle, used by one of the Wesleyan Methodist ministers, was built in South Durham-street, but this has been found ill-adapted to the present day, and the United Methodist Free Church body, who are busy erecting several chapels in the neighbourhood, determined to pull down the old tabernacle, and rebuild it in more modern style, at a cost of 2,000*l*. The new place of worship will be capable of holding about 1,200 people. The architect is Mr. Joseph Potts.

Books Received.

The Golden Sheaf: Poems contributed by Living Authors. Edited by the Rev. Chas. Rogers, LL.D. London: Houlston & Wright. 1868.

To the composition of this very cheap and pretty book eighty-four writers have contributed, including, and we name those whose poems have interested us most, the Rev. Goodwyn Barmby, W. C. Bennett, Fras. Bennoch, Sir John Bowring, Mrs. Cowden Clarke, Mrs. Newton Crosland, Canon Dale, S. C. Hall (a capital "Love-letter to his Wife"), Fanny Havergal, Mr. and Mrs. Howitt, Chas. Mackay, Eliza Ogilvy, Bessie Parkes, the late Miss Power, J. E. Reade, Christina Rossetti (subtle and obscure), Charles Swain, Martin Tupper, A. A. Watts, &c. The longest work, with the exception of Mr. Edmund Reade's "Battle of Hastings," and the one that most belongs to our special subjects, is "Venice Free," by the author of "Blythe House." This gives in charming verse a graphic account, and the only one, so far as we know, of the events that attended the assumption of Venice by King Victor Emmanuel. The descriptions are evidently those of an eye-witness. Here are a few lines from it about—

Vicenza.

"Vicenza gives a welcome, all her own,
No town in modern times could e'er have shown.
Her world-famed citizen, Palladio, planned
Her an Olympian theatre. Death's hand
Removed him when his work was scarce begun;
But worthily 'twas finished by his son.
As amphitheatre the inner space
Is formed. The stage is upward sloped to face
The enlarged arena. Radiating thence
Five streets are seen, which—to the misled sense
Of vision—seem to stretch far out of sight;
And these are crossed by others, left and right.
The stage-front a triumphal arch appears,
Where columns and tall statues rise in tiers
Up to the tent-like roof, 'neath which a space
Is formed, where noble bas-reliefs have place.
The theatre is filled in every nook
By faces whose expectant, eager look
Seems almost pain."

Speaking of—

Verona.

"Verona, with the wondrous legacy
Bequeathed to her through many a century
By ancient Rome, her massive world-renowned
Old amphitheatre, herein has found
The grandest medium whereby to convey
Her sense of joy on this her festa-day.
With well-placed care she has contrived to keep
Her treasure almost perfect; save the steep
Arcaded outer wall, the rest remains
The same as when proud emperors and their trains
Of cruel courtiers came to glut their eyes
With tortured Christians' dying agonies,
And scarce less brutal contests of wild beasts,
Which formed the crowning glory of their feasts.

Among the illuminations of the night
This weird old circus forms a startling sight.
Within the giant arches' yawning void,
Throughout the evening, soldiers are employed
To tend each steady-burning deep red fire,
Whose floods of crimson smoke rise ever higher."

Departing thence, the king proceeds to—

Florence.

"——Forth from Verona's gates he's gone,
Through Virgil's native Mantua; and on
To his new capital, Florence the fair,
Where Brunelleschi's dome soars up in air;
Where Giotto's beauteous Campanile stands;
Where crowd the works of Donatello's hands;
Where Buonarotti's *David* rears its head;
Where Raphael's, Titian's works are richly spread
O'er endless walls: where, from the plastic hand
Of Luca della Robbia, bold groups stand;
Where Ghiberti's unrivalled bronze gates rise,—
'Fit only to be gates of paradise,'
Said Michelangelo;—where *Dante's Seat*
Is still remembered; where dead heroes meet
In Santa Croce's fane,—heroes, that is,
In the world's progress! Of a surety this
Is the *most* noble conquest!
Oh! God grant
The sons of Italy again may pant
For glory such as this!
May they once more
Revive their schools of painting as of yore,
In sculpture, literature, science, and art,
And in all strides of mind take their due part;
Recalling the grand names which form their dower,
May they go forth with resurrection power,
To fill their post in heaven's wide-spread plan,
That man shall work, and aid his fellow-man!"

Heartily we re-echo the good wish.

The volume is introduced by a brief essay on the Poetic Art, by Mr. E. J. Reed, who, besides being chief constructor of the Navy, shows evidence of skill as a critic.

Miscellanea.

Subscriptions to Builders' Benevolent Institution.—The secretary writes,—"In error I omitted in the advertisement of last week the name of Wm. Tite, esq., M.P., a donation of 10*l*. 10*s*. Will you kindly assist me by taking notice of this in your publication of this week?" We willingly comply.

A new Hot-air Engine.—A number of gentlemen, most of them practical engineers, recently assembled at Edwards & Co.'s establishment, Oxford-street, to inspect their new patent hot-air engines. A one-horse engine at work, a two-horse engine not at work, and an engine in pieces, were exhibited and criticised. The engine consists of a large furnace, surmounted by a cylinder, through which the piston moves. The fire having been lighted, the piston begins to work, at first slowly, until it pumps in the fresh cold air. In less than a minute, the supply of air having become heated, the engine gains its full speed, which is regulated in the same manner as in steam-engines. The waste air escapes by means of a large pipe, which will also serve for the purpose of heating, as the pump through which the cold air is drawn in answers for ventilation. Difficulties and complications in the old caloric engine are avoided, we are told, and the cost is said to be exceedingly low.

Hackney Board of Works Reports.—The eleventh annual report of the Hackney Board of Works, including the reports of their surveyor, Mr. Lovegrove, and their medical officer of health, Dr. J. W. Tripe, has been printed. There are also reports on the cholera epidemic appended. From that epidemic Hackney suffered comparatively little. Small-pox was the most prevalent of the ordinary diseases in course of the year, and want of vaccination is said to have been a cause of this prevalence. The general rate of mortality in the district was 229 per 10,000 inhabitants, by contrast with 264 in the whole of London. In respect to the very important subject of overcrowding, and the powers of the new Act as a remedy, Dr. Tripe says:—

"The 35th section, under which the regulations for lodging-houses have been framed, is one of the most important in the Sanitary Act, but so far as I have seen, requires much care in carrying it out. Before the passing of the Act, there was not any difficulty in obtaining convictions for overcrowding, under the Nuisances Removal Act, at some police courts, but I believe there was in others. This section has this great advantage, that the district authorities have been able to obtain a regulation stating what is, and what is not, overcrowding. The first district for which regulations were obtained, was Hackney, and the minimum space, viz., 300 cubic feet for each adult in a sleeping-room, may be considered as the minimum for other districts. The Secretary of State objected to this space as too small, but he granted it as being the first application to him to fix the breathing space requisite for an individual, and expressed a hope that a larger number of cubic feet would be afforded after a time. I can scarcely agree with this hope, and find great difficulty in enforcing this regulation. . . . . We have not found it necessary as yet to take out any summonses under the regulations, inasmuch as the ordinary powers under the Nuisances Removal Acts, have been found sufficient. The great error, so far as I perceive, in framing the regulations has been, that no district has fixed a minimum penalty, while all have adopted the maximum penalty mentioned in the Act."

The New Law Courts.—We do not find any grounds for a recent paragraph in the daily papers as to a decision in this competition. The judges have not met since their report was returned by the Treasury, and nothing whatever has been done.

Paper from Wood.—Many very interesting samples of paper manufactured from wood have been shown at the Paris Exhibition. The invention is not new, but the processes by which the fibres are treated, the method of whitening the material and converting it into a pulp for the manufacture of excellent paper, have only now been successful; and the factories in operation in France and elsewhere abroad are preparing daily from 1,000 to 2,000, and, in some instances, 10,000, kilogrammes of pulp per day from wood, for the production of white paper. Hitherto there has been great difficulty in producing paper from woody substances, on account of it not receiving ink and pressure without deterioration.

New Market, Accrington.—The new market in Accrington, the result of a competition which took place last year, and was duly noted in our pages, is now up to the level of the plinth course, and the upper portion is about to be proceeded with, under a fresh contract. The size internally is 60 yards by 40 yards. Warrenden stone, in large blocks, is used up to the plinth, and local stone (white) of good quality is used for the upper portion. Patent glazed bricks are to be used for lining the whole of the interior. The roof is entirely of iron, and covered with blue slates. The lighting is by means of splayed clearstories, and the appearance is expected to be novel and effective. The architect is Mr. J. F. Doyle.

Opening of the New Rifle Drill-Hall, Great Yarmouth.—The new rifle drill-hall, recently erected for the use of the Yarmouth rifle battalion, has been formally opened. It was built from designs prepared by Mr. J. T. Bottle, of this town, architect. The style is Gothic. The hall is 114 ft. in length, by 60 ft. in width. From the base to the centre of the roof the height is about 30 ft. The roof is elliptic, and springs from the floor. The south front is faced with flint, with Bath stone dressings, and contains a residence and offices, an armoury, and other adjuncts. The edifice is constructed of red brick, with white brick string courses. The total cost will be about 1,300*l*. Mr. Leggett was the builder, and Mr. Want the Carpenter. At the south end an orchestra has been erected. The hall is lighted at night with gas.

Metropolitan Cemeteries.—A return, moved for by Mr. Berkeley, has just been issued from the Queen's Printing-office, which gives the number of licences and other particulars connected with burial grounds within the metropolitan district. By this return it appears that licences were granted under the Metropolitan Interments Acts, 1852, for new, or extension of old, burial grounds in the districts of Marylebone, Lambeth, Islington, Paddington, City of London, St. Pancras, Camberwell, Westminster, Charlton, Putney, Greenwich (Crooms-hill); Deptford, Sydenham, Hammersmith, Norwood, Battersea, Plumstead, and Willesden. Particulars are recorded as to twenty-one cemeteries, the largest of which belongs to the General Cemetery Company, Kensal-green. This burial-ground comprises an area of rather less than 80 acres, of which 73 acres have been consecrated, and 25,363 interments took place between the 1st of January, 1852, and the 31st of August, 1866. The Cemetery of St. Mary at the same place is used exclusively by Roman Catholics, consists of 30 acres of land, and between 1858 and 1866 inclusive, 12,561 interments took place. The Norwood Cemetery occupies 40 acres; that at Abney Park, 33 acres; the Brompton Cemetery, 38 acres; and the City of London and Tower Hamlets Cemetery, 25 acres. It appears from this return that the number of bodies permitted to be interred in one grave varies from one to five, and that at Kensal-green no restriction as to number is made, but that a layer of earth at least a foot thick is to be deposited between each coffin; so that under this regulation a grave 16½ ft. in depth will receive six coffins. Particulars are also appended as to drainage, with reference to brooks, watercourses, wells, and springs in the immediate vicinity of these cemeteries, and the return specifies also the number of houses situated within 200 yards of each burial-ground.

Society of Arts.—The opening meeting will be held on Wednesday, the 20th instant, when the opening address will be delivered by the chairman of the Council.

The Colliery Explosions.—Mr. Plant invites attention to the fact that the explosion at Oaks Colliery on the 5th occurred just six days after his letter of "*Caution*" was sent to us, which communication, however, was not published by us until the 8th. Others have since occurred, as elsewhere mentioned.

Leicester-square. — An action has been brought against the Metropolitan Board of Works for alleged trespass in dealing with the inclosed space in Leicester-square under the Public Gardens Act of 1863. The plaintiff is Mr. Tulk, who claims that the inclosure is his property, and not a public garden.

Clifton Workhouse Infirmary.—Attention has been called to the uncleanly management of this infirmary by the *British Medical Journal*, and we are glad to see that the guardians have been aroused to the carrying out of much-needed amendments in that respect. The journal named suggests to the guardians, that not only is it necessary that their rules should be good, but that they should be thoroughly carried out, and not neglected as they were at the time their inquirer paid his visit. Without extreme cleanliness in an infirmary, it is not possible to prevent the spread of disease.

The Albert Institute at Windsor. — An influential meeting was held on Wednesday in last week, at the Town-hall, Windsor, for the purpose of furthering the erection of the proposed Albert Institute. Captain Bulkeley presided. Mr. Rawlins read a statement and subscription list, from which it appeared that about 1,100*l.* had already been subscribed. Mr. Eykyn, M.P., Captain Bulkeley, Mr. W. R. Harris, Mr. Hall Saye, Mr. Darvill, Mr. Browning, Mr. Gordon Gyll, and other gentlemen, addressed the meeting, and a resolution that "it was desirable to erect the proposed Albert Institute in order to express, in a work designed for the public good, the respect of those present for the memory of the Prince Consort," was unanimously carried.

Plant-house Glass.—M. L. Cailletet details experiments on the influence of coloured rays on the decomposition of carbonic acid by plants. He observes that green light afforded unexpected results, whether this colour was obtained from grass, vegetable leaves, or solutions. Under its influence carbonic acid, he states, is never decomposed: a fresh quantity of gas seems, on the contrary, to be evolved. When a glass containing pure air and a leaf was placed in full sunlight, under a green glass shade, after a few hours a quantity of carbonic acid was obtained that was scarcely inferior to that which the leaf would have evolved in the dark. If correct, this should influence the glazing of greenhouses. Of course, for a plant-house a chief object must be to promote the decomposition of carbonic acid and the absorption of carbon by the growing plant, and hinder the evolution of carbonic acid, by day at least.

Self-supporting Prisons in America.—The governor of the State Prison of Massachusetts (Mr. Gideon Haynes) forwarded a letter about nine months since to Mr. William Tallack, secretary of the Howard Association, 5, Bishopsgate-street Without, E.C., stating that the said prison receives about 120,000 dollars per annum for the labour of its inmates, and estimating that a clear profit of 20,000 dollars would probably be gained during the year. Mr. Tallack has just received from the governor a second letter (November, 1867), from which the following is an extract:—

"For the year ending September 30th, we have made a clear profit of 22,000 dollars. This has been accomplished notwithstanding that the Legislature has, since I wrote to you, increased the salaries of the officers of the prison to the amount of about 6,000 dollars per annum, which has been paid in the past year. This sum of 22,000 dollars is over and above all and every expense connected with the prison, viz., officers' salaries, clothing, bedding, and feeding the convicts, transporting them from the various counties where they were convicted to the prison, adding 200 volumes to the library, providing all discharged prisoners with a new suit of clothes and five dollars in money, and paying all repairs connected with the building."

The governor estimates 30,000 dollars (6,000*l.*) as the profit for the coming year. He remarks: "Our records show that crime is most prevalent among that class who are ignorant of trades. A greater per centage of reformation is obtained through the agency of good trades being taught the men than in any other way."

The Concrete Groyne at Brighton. — The works in connexion with the Concrete Groyne, the construction of which has, from various causes, been long delayed, have been brought to a close. The top forms a promenade, gradually inclining down to the water. The total cost of the Groyne (constructed by the Town Council itself) has been nearly 5,000*l.*, or something more than double the amount of the original contract price.

The Sanitary State of Leicester.—A paper upon this subject has been read before the local Literary and Philosophical Society, by Dr. Buck, as president. The author of the paper passed in review the works which have been done and are now being carried out for the promotion of the public health. He has been for some years officer of health to the borough, viz.—from 1849 to 1854, a period in which the important sanitary works of drainage and water supply were established. Leicester, he said, had certainly done much during the last twenty years, had accomplished deep drainage and some forty-five miles of sewerage, had abolished intramural interments, and had obtained, by the aid of the Leicester Waterworks Company, a constant supply of the most excellent water.

Working-Men's College Building Fund.—A fresh appeal to the public is being made on the part of this college by the principal, Mr. F. D. Maurice, for contributions towards extending their building in Great Ormond-street, in consequence of the great increase in the number of the students. The principal says:—

"A site is already provided, the ground in the rear of the house (12,000 square feet in area) being the freehold property of the college. We are advised that such a building as this can be well and substantially built in a plain but good style for about 2,000*l.* to 2,500*l.* Of this amount we have 1,000*l.* in hand and 200*l.* promised."

Financially the college is self-supporting. Contributions may be sent, amongst others, to the London and county Bank, Oxford-street Branch ("Working-Men's College Account"); or to Mr. Thomas Hughes, M.P., 9, Old-square, Lincoln's-inn, or 33, Park-street, Grosvenor-square.

Economy in Street-watering. — Cooper's patent for watering streets, &c., has been tried on roads in the district of St. George, Hanover-square; and the surveyor, Mr. H. T. Tomkins, says the trial "is most satisfactory, and far exceeds his expectations," and he anticipates its general adoption, both from its great economy and its doing away with the old annoyance of perpetual street-watering in dry weather. The materials, we understand, are dissolved in the water of the watering-carts, and are deliquescent: they are not only innocuous, but act as a deodorizer, and also as a consolidater of the roads. A single watering is said to last a whole week, so that the saving to the ratepayers, it is believed, will be of importance, as the ingredients are both cheap and abundant. The clearing of the streets from watering-carts is itself a great desideratum, both with the public and the ratepayers.

Antiquarian Discoveries. — At the last monthly meeting of the Newcastle Antiquarian Society, Dr. Bruce laid on the table a paper impression of a stone found in the wall of Antoninus Pius, about eight miles from Glasgow. It was now in the possession of Professor M'Chesney, American Consul at Newcastle, who intends moving it to the United States. It measured 2 ft. 10 in. by 2 ft. 3 in., and bore an inscription, which was thus interpreted:—

"Dedicated to the Emperor Cæsar Titus Ælius Hadrianus Antoninus Augustus Pius, the Father of His Country. The Vexillation of the 20th Legion, styled the Valerian and Victorius, constructed three thousand paces of this wall."

A Portland cement cast will be taken of the stone for the Old Castle, Newcastle. Dr. Bruce then described an altar found near Wallsend, which had been presented to the society by Mr. B. Atkinson. When found, before 1848, it was surrounded by twelve stones. Dr. Bruce took the perforation in the centre as representing the sun, and believed that twelve rays round it and the twelve stones had reference to the twelve months of the year. Much superstition was associated with such stones. Bargains made by shaking hands through the perforations were regarded as very sacred; and children were passed through them that they might be cured of any disease they had. A similar efficiency was supposed to belong to the passing of children through the cleft in a riven tree.

An Ancient Tree.—A tree has lately been cut in Ohio which is declared by experts to be 792 years old. It weighed thirty tons, was more than 12 ft. in circumference, and made 7,000 ft. of inch boards, clear stuff.

St. Paul's Schools, Portwood.—The building committee of these schools have selected a tender for their erection from the numerous list sent in by the principal builders of the town and neighbourhood. Their choice, we hear, has fallen upon Mr. W. H. Brown, of Stockport. It is contemplated, we believe, to proceed at once with the building, so far as the weather permits.

Bridging the Ohio.—Louisville will soon have a great bridge spanning the Ohio. The bridge is to be constructed with but one swinging span, or draw, which is over the Louisville and Portland Canal. The total length of the superstructure will be 5,220 ft., and of its graded approaches 2,500 ft., making the total length of the bridge, from the points where the ascent is commenced, 7,720 ft. The total length of the connexion between the Jeffersonville Railroad and Louisville and Nashville Railroad, including bridge, will be 3½ miles. Estimated cost, 1,500,000 dollars.

Monument to the late Mr. R. Ash, in Highbury Chapel.—A monument has just been erected in Highbury Chapel, to the memory of the late Richard Ash, of Victoria-square, by his widow. The design has been prepared by Messrs. Hansom & Son, of Bristol; and executed by Mr. Bolton, of Cheltenham (late of Worcester). It is 10 ft. high by 5 ft. wide, commencing at 6 ft. from the ground. The front is divided into three niches or compartments, the centre being double the size of the two side ones, each being finished by a sharp-pointed gable, crocketed, and surmounted by a carved finial. The centre compartment contains the inscription, on a white marble slab. Above the inscription is a coat of arms of the deceased, carved in stone. In the side compartments are two recessed niches, containing standing figures of angels, holding scrolls, on which is engraved, "Blessed are the dead which die in the Lord." The base is a moulded stringcourse, having demi-figures of angels in the centre and at each angle. The divisions of the three compartments are marked by small buttresses, having moulded bases and crocketed pinnacles. Interspersed in various parts are demi-figures of angels, carved capitals and spandrels, &c.

TENDERS

For church and school-buildings for the district of Christ Church, Somers Town, St. Pancras. Messrs. Newman & Billing, architects. Quantities supplied by Mr. Rickman:—

Howard	£13,890	0	0
Carter & Sons	13,480	0	0
Perry	13,317	0	0
Browne & Robinson	12,995	0	0
Coleman	12,560	0	0
Patrick & Son	12,525	0	0
Thompson	12,173	0	0
Dove, Brothers	11,925	0	0
Myers & Sons	11,630	0	0
Wells (accepted)	11,350	0	0

For works at 34 and 35, Monkwell-street, for Messrs. H. E. & M. Moses. Mr. N. S. Josephs, architect:—

Condor	£4,218	0	0
Newman & Mann	3,993	0	0
Browne & Robinson	3,984	0	0
David King & Sons	3,766	0	0

For rebuilding and repairs to Brunswick Stable-yard, and No. 122, and 122a, City-road; and Nos. 2, 3, 4, 5, 6, and 7, Lewington's-buildings. Mr. J. M. M'Culloch, architect:—

Dove, Brothers	£1,485	0	0
Mansbridge	1,468	0	0

For building warehouse and stables at Roupell-street, Lambeth, for Mr. F. Bowering. Mr. James L. Stewart, architect:—

Sawyer	£2,140	0	0
Shurmur	2,110	0	0
Smith & Son	1,996	0	0
Eustace	1,988	0	0
Cubbitt, Brothers	1,901	9	0
Wilcox	1,875	0	0
Quennell	1,750	2	3½
Golding & Son	1,745	0	0
Pierce & Booth	1,696	0	0
Pearce	1,547	0	0
Pinner (accepted)	1,506	0	0

For rebuilding No. 54, Broad-street, St. James's. Mr. B. Tabberer, architect:—

Prince	£1,089	0	0
Keys	917	0	0
Messrs. Bawaters	897	0	0
Larke	896	0	0
Bostel (accepted)	837	0	0

For the erection of a pair of villas at Chislehurst, Kent, for Mr. D. Chattle. Mr. Joseph S. Moye, architect:—

Grover (accepted)	£2,100	0	0